MAY 28, 1951

NEWS ISSUE

Electrical World

Price 35 Cents

A McGRAW-HILL PUBLICATION

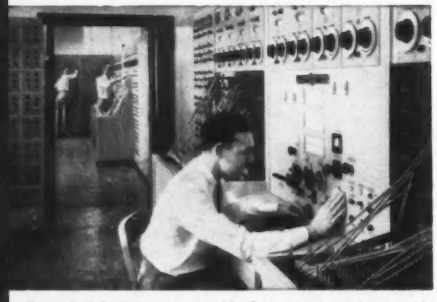
John Canfield, new president of Public Utilities Advertising Association

French Test 220-Kv Cables at New Station Near Paris . . . Page 16

Price Rollback on Apparatus . . . Page 30

J. R. Stevenson, G-E Analytical Engineering Division (right) discusses characteristics of system performance indicated by network analyzer with utility engineers A. J. Cye and H. E. Marshall.

Reviewing layout for new facilities are S. B. Crary, Manager of Analytical Engineering Division (left), and W. J. McLachlan, Manager of Central Station Engineering Divisions.



Expanded facilities now provide for network analyzers with 6, 10, 12, 14, 18 or 24 generating stations and a proportionate number of other analyzer components. Photo shows two analyzers, now interconnected.

New help available for efficient system planning

General Electric network analyzers interconnected to provide new capacity for solving system problems

Since the first General Electric–M.I.T. unit was designed in 1929, the network analyzer has been recognized by the nation's power system engineers as an invaluable aid in studying power system problems. Now comes the most recent advance in this field: new board interconnections and modernization that expand the facilities of G.E.'s two network analyzers to provide for even wider use by the industry.

By interconnections, one of the two analyzers can now be used with part of the other, while non-interconnected facilities are used concurrently for separate studies.

The many requests for use of G-E network analyzers reflect their value in determining the needs of today's heavily loaded power systems—the backbone of the nation's mobilization program. The increased facilities of the G-E network analyzers, plus related engineering counsel, should go a long way toward more efficient system planning, at a time when it is more important than ever. General Electric Company, Schenectady 5, N. Y.

MORE POWER TO AMERICA

GENERAL ELECTRIC

201-162

The Electrical Week

INDUSTRY MOBILIZATION—Deep cuts are being made by DPA in quotas for copper, aluminum, and other critical materials for third quarter (p 4) . . . Interior Secretary Chapman has declared flatly there will be no more hydro-powered aluminum plants placed in the Northwest (p 4) . . . Booklet, "ABC's of CMP" offered by Department of Commerce (p 4) . . . Industry M orders are listed on Page 4.

WASHINGTON—Private electric utilities are working with AEC to determine whether industrial use of atomic energy is feasible (p 12) . . . New atomic production plant to be built near Denver (p 13) . . . Secretary Chapman approves Gunnison-Arkansas project of USBR (p 19) . . . House may send subcommittee to make on-the-spot check of St. Lawrence project (p 19) . . . Interior's case against FPC's Roanoke Rapids decision is set for hearing Sept. 4 (p 19).

ELSEWHERE—Public Service Co of Colorado keeps in step with the industry (p 5) . . . Director of Stanford Research Institute tells Great Lakes district meeting of AIEE that Western Europe is a good source of scarce research personnel (p 11) . . . EEI President Sutton warns delegates to PUAA convention in New York that company policies can wreck the best advertising program ever devised (p 13) . . . Transformers and switched capacitors were important subjects of discussion at PEA joint meeting (p 14) . . . Utilities will be getting lower prices shortly on many equipment items (p 30).

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TVA certainly has sold the people in its area on using cheap electricity. Recently, a man was arrested in eastern Tennessee for operating a 50-gal still. Six electric heating units eliminated the tell-tale smoke. He claimed he got his idea from advertisements booming the area's "cheap electricity."

The Bureau of Reclamation has asked Pacific Gas & Electric to serve its first customer under the terms of the "wheeling" contract signed recently. The federal customer to be served over PG&E lines is the West Side Irrigation District, Bethany, Calif.

March sales of electrical goods wholesalers were under the usual seasonal increase but 1951 sales continue far above 1950. Latest figures from the Bureau of the Census show that March sales were only 5% over February but 35% above March 1950. Cumulative first quarter sales were 57% higher than in the first quarter of 1950.

"Electrical World" will again publish the official newspaper at the annual convention of Edison Electric Institute. Under its old familiar name, "Unconventional Daily," the EW-supported paper will be waiting to meet the delegates when they register June 5 at Denver.

Steel companies are becoming alarmed at the threat of peacetime competition from the subsidized aluminum industry.

The industry can often get steel and copper in the open market in 30 to 60 days which can be secured with DO's only after a wait of six months or more.

If you plan to take over a competitor or sell out to one, better get the deal cleared with the Federal Trade Commission. Congress has voted FTC authority over mergers which reduce competition.

Notes From The News

There's a red-hot boundary dispute flaring between Morgan County and Washington County, Ohio, and it all started over the $40-million Muskingum plant planned by Ohio Power Co. Each county wants to prove the plant site is in its territory—for tax purposes, naturally. Recent maps show the county line follows the Muskingum River, placing the site in Washington County. But Morgan County officials have produced century-old maps to prove the 26-acre segment of land is actually in their bailliwick. After a "friendly" conference, delegations from the two counties decided to let the Ohio courts decide the issue . . . Annual production of electricity per capita is greater in Quebec Province than anywhere else in the world, Walter J. Lavigne, Shawinigan Water & Power Co, said in a recent speech at Montreal . . . James B. Carey, CIO Secretary-Treasurer and president of IUE-CIO, charged recently that 30,000 electrical workers have been laid off because of defense conversions. "There will, of course," he commented, "be more conversion unemployment. And there will be no planning to avert this mass tragedy." . . . Puget Sound Power & Light Co has offered to sell its steam-heating system serving downtown Seattle, its last remaining utility operation within the city. The company recently sold all its other Seattle properties to City Light.

DPA Slashes Copper, Aluminum Quotas for Utilities in 3rd Quarter

Deep slashes are being made in third quarter allocations of critical materials for power expansion, it was learned in Washington last week.

Defense Electric Power Administration is expected to get only 25 million lb of aluminum for use by electric utilities during the quarter. Copper for power expansion is tentatively 75 million lb for the quarter and steel, 270,000 tons. Depa was asking for more than 40 million lb of aluminum, after receiving 49 million lb for the second quarter. Copper allocation in the second quarter was 92 million lb. The steel figure would continue the 90,000 tons per month allocations made for May and June.

Depa Appeals Cuts

These third quarter figures have been established by the Defense Production Administration, but Depa officials are refusing to admit that they are final. Last week they were appealing the sharp dip in aluminum and copper conductor for the electric utilities.

Defense Production's Materials Requirements group has given similar treatment to heavy power equipment manufacturers. The National Production Authority's Engine and Turbine Division is smarting under cuts in its estimated third quarter needs of 35% in aluminum, 30% in copper, and 15% in steel.

Not Making Full Use of DO's

Why the cuts in materials for the power expansion program? Depa—not DPA which made the slashes—had one clue last week. It was that electric utilities have not been using nearly all the DO-48 ratings authorized by Depa for use in the second quarter. This means that the utilities are not chewing up the 49 million lb of aluminum or the 92 million lb of copper which they were allocated.

In a letter to all electric utilities, Depa Administrator C. B. McManus declared that "electric utilities are not extending the DO-48 ratings authorized for major plant additions for the second quarter of 1951. The aggregate requirements of the industry for program materials are judged by the amount of material ordered by use of DO ratings," he emphasized.

"Therefore," McManus pointed out, "it is necessary that all utilities which have received DO-48 rating authorizations either extend the ratings in full or promptly notify Depa of the amounts not required so that they can be allotted for other projects."

McManus' letter called attention to the fact that authorization to order program materials for delivery in the second quarter means that purchase orders must specify a delivery date prior to July 1. Orders scheduled for delivery in the second quarter which are not delivered until the third quarter will be charged against the second quarter quota, however.

"Because of the lead time required at the metal mills," McManus warned, "all second quarter ratings must be extended at once if they are to be valid."

The recent letter followed by more than a month a similar appeal for use of the DO-48's. Depa in April had "urgently requested" electric utilities to use their DO-48 ratings in ordering aluminum.

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Industry M Orders

National Production Authority has issued the following M orders of interest to the electrical industry. Orders not of interest have been omitted. Copies of orders may be secured from the National Production Authority, Washington 25, D. C., or any regional Department of Commerce office.

M-60 provides priority rating DO-70 to be used by producers of **essential component parts**, such as nuts and bolts, to get needed materials until CMP reaches its full effectiveness; specifies first three months of 1951 as base period; and permits following percentages of base period production: Iron and steel products 105%, copper products 100%, aluminum products 95%.

M-61 grants producers a DO-75 priority rating for obtaining **essential materials for machine tools** during the third quarter of 1951 or until CMP becomes effective.

Chapman Bars More Aluminum in Northwest

Secretary of Interior Chapman has made a flat decision that there will be no more hydroelectric-powered aluminum plants placed in the Northwest.

Chapman has been severely criticized for putting the planned 85,000-ton Aluminum Co of America expansion at Wenatchee, Wash., because of the demands it will make on the area's electric power. So, in announcing a new 188,000-ton expansion program, Chapman made it known that all of the new capacity will have to go in the Gulf Coast area and use natural gas to generate electricity.

In his statement announcing the program, Chapman said: "The location and type of power to be utilized will be a most important consideration." He told Mayor Delesseps Morrison of New Orleans on Monday that this means there will be no more Northwest projects.

Morrison and Henry Kaiser went to see Chapman to propose that capacity of Kaiser Aluminum's 100,000-ton project at New Orleans be doubled. They proposed that Kaiser be given the 54,000 tons that Apex Smelting Co had been allocated in last winter's 446,000-ton expansion program. Apex has announced that it is unable to go through with the deal. Further, Kaiser asked for 46,000 tons of Chapman's new 188,000 goal.

Chapman did not commit himself, but it is a good bet that Kaiser will get a good chunk of what he's asking. Probably all the present producers will get some of the new program although Chapman said he would see that new producers get into the industry.

His announcement came a day after Rep Emanuel Celler's House monopoly subcommittee sent Chapman a telegram urging a 200,000 ton increase in capacity in order that small and medium-sized fabricators can stay in business.

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Get the 'ABC's of CMP'

Anyone wishing to know how the Controlled Materials Plan operates should get a copy of "ABC's of CMP." This 12-chapter booklet is available at field offices of the Department of Commerce and at the National Production Authority, Washington 25, D. C.

Denver Utility in Step with Industry

Public Service Co of Colorado Growing Rapidly in Customers and Sales, Opposes Encroachment of Federal Power into its Territory

Most big electric utility systems are located in densely populated areas. Usually one big system touches another and that in turn another. Interconnections tie the systems together so that the final effect is that of one gigantic network.

Keeps Up with Other Big Utilities

But there are areas in the United States which are sparsely populated. Big companies are miles apart. And each company is more or less on its own. Are these companies matching the progress of other utilities throughout the United States? In the case of one particular company, the Public Service Co of Colorado, the answer is "yes".

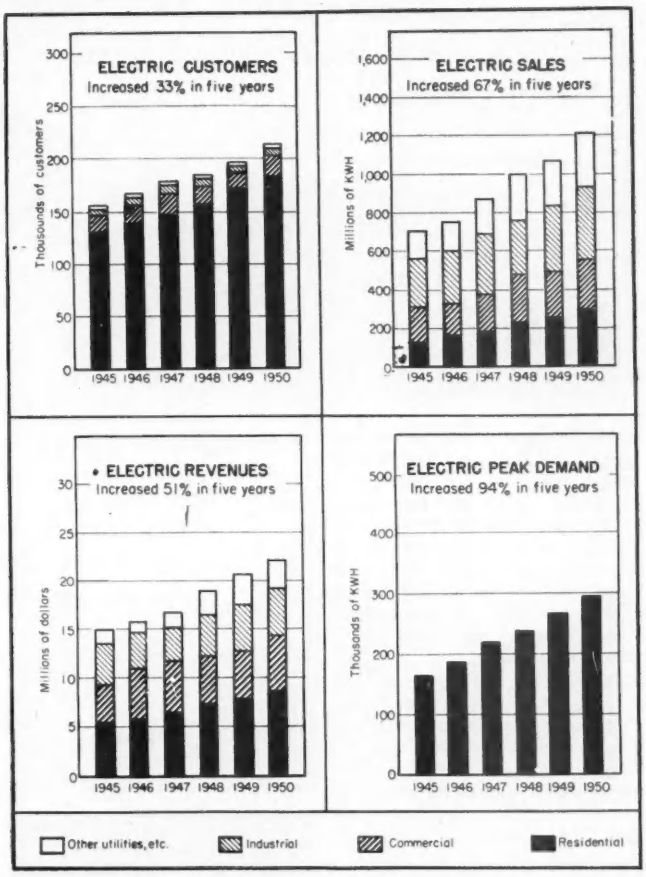
This company, which serves most of Colorado, has its headquarters at Denver, the largest city in the Rocky Mountain area with a population over 400,000. But the entire state has a population of only 1.3 million. It also serves a small area in Wyoming from the lines of a wholly owned subsidiary, Cheyenne Light, Fuel & Power Co.

Growth Has Been Rapid Since '45

Public Service has been growing at a rapid pace since 1945 (see chart), and as of May 1 it served 215,789 electric customers of which 166,571 were residential. This included its Wyoming property.

The company also is in the gas business. It has 168,234 gas customers of which 148,617 are residential customers.

But despite its gas connections Public Service, under the leadership of Pres J. E. Loiseau, is a leader in the fight against public power. During 1950 it continued its policy of resisting appropriation requests of the Bureau of Reclamation for transmission lines which would either duplicate existing adequate facilities of the company or constitute an invasion of its service area.



Last August the company signed an agreement with the bureau to deliver power from federal projects to preference customers, principally REA co-ops, over company lines. Company power will move over bureau lines to company property in eastern Colorado.

A power purchase contract under

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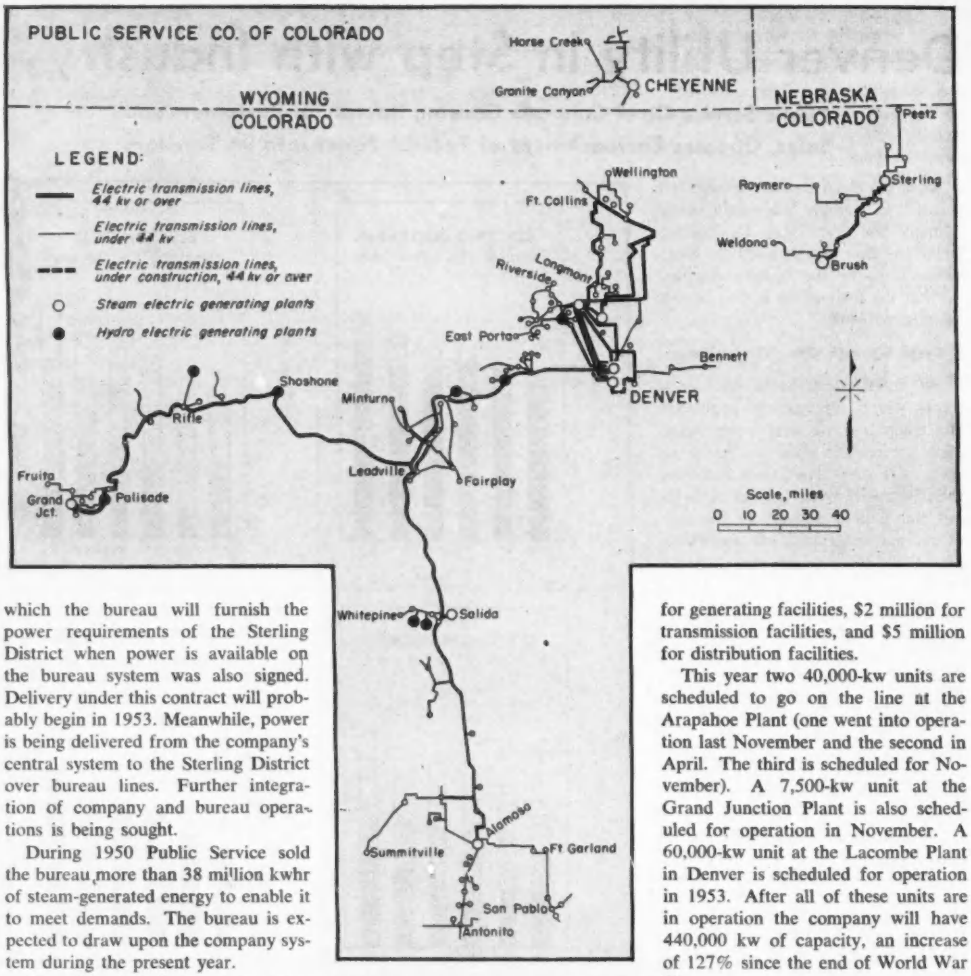


which the bureau will furnish the power requirements of the Sterling District when power is available on the bureau system was also signed. Delivery under this contract will probably begin in 1953. Meanwhile, power is being delivered from the company's central system to the Sterling District over bureau lines. Further integration of company and bureau operations is being sought.

During 1950 Public Service sold the bureau more than 38 million kwhr of steam-generated energy to enable it to meet demands. The bureau is expected to draw upon the company system during the present year.

Even though it is also a gas company (82% of its gas customers heat their homes with gas), the company has been active in building electric load. Average annual residential usage of electricity rose from 1,441 kwhr in 1949 to 1,597 kwhr in 1950. Percentage-wise this increase is above the national average. Lighting of all kinds has been stressed. Despite the sparsity of the rural population its area electric service is now available to more than 97% of all farms and ranches.

To serve this growing electric load the company, as have all electric companies, has been forced to spend considerable funds for construction. In 1951 about $12 million will be spent for generating facilities, $2 million for transmission facilities, and $5 million for distribution facilities.

J. E. LOISEAU has been president of Public Service of Colorado since '43

This year two 40,000-kw units are scheduled to go on the line at the Arapahoe Plant (one went into operation last November and the second in April. The third is scheduled for November). A 7,500-kw unit at the Grand Junction Plant is also scheduled for operation in November. A 60,000-kw unit at the Lacombe Plant in Denver is scheduled for operation in 1953. After all of these units are in operation the company will have 440,000 kw of capacity, an increase of 127% since the end of World War II.

The company's financial growth also has been rapid. In 1950 consolidated net income was $6,951,000, a record high. This was $678,000 or 11% higher than in 1949. Requirements for fixed charges were earned 6.6 times while preferred dividends were earned 7.2 times. Combined fixed charges and preferred dividends were earned 3.7 times. Earnings per share of common stock amounted to $2.40 on the 2,491,168 shares outstanding at the end of the year. In 1949 earnings were $2.37 per share on 2,241,718 shares. Of $119,873,580 in capitalization 32% is common stock, 22.9% is preferred, and 44.3% is long-term debt which in 1943 was 66%.

C-E REHEAT BOILERS

LUMBERTON STATION

CAROLINA POWER & LIGHT COMPANY

THE C-E Unit illustrated here is now in process of fabrication for the Lumberton Station of the Carolina Power & Light Company at Lumberton, North Carolina.

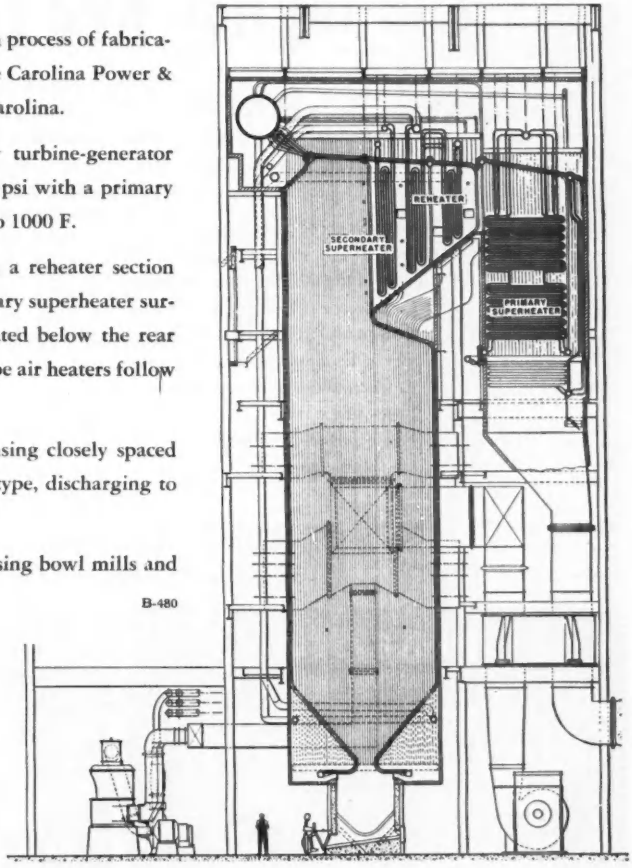
It is designed to serve a 75,000-kw turbine-generator operating at a throttle pressure of 1450 psi with a primary steam temperature of 1000 F, reheated to 1000 F.

The unit is of the radiant type with a reheater section located between the primary and secondary superheater surfaces. A finned tube economizer is located below the rear superheater section, and regenerative type air heaters follow the economizer surface.

The furnace is fully water cooled, using closely spaced plain tubes. It is of the basket-bottom type, discharging to a sluicing ash hopper.

Pulverized coal firing is employed, using bowl mills and tilting, tangential burners.

B-480



C-E

COMBUSTION ENGINEERING—SUPERHEATER, INC.

200 Madison Avenue • New York 16, N. Y.

ALL TYPES OF BOILERS, FURNACES, PULVERIZED FUEL SYSTEMS AND STOKERS; ALSO SUPERHEATERS, ECONOMIZERS AND AIR HEATERS

Study of transformers shows more forced cooling in the higher kva ratings

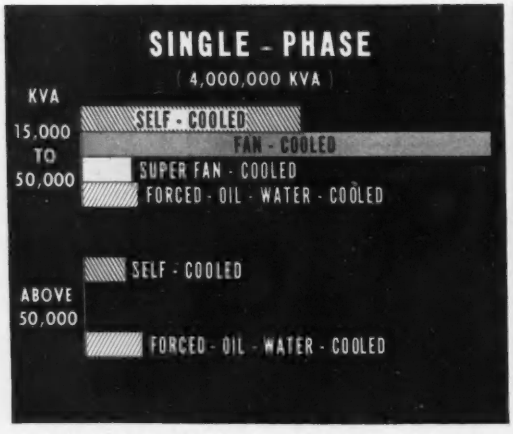
General Electric has recently completed an analysis of approximately fifteen million kva of power transformers, rated 15,000 kva and above.

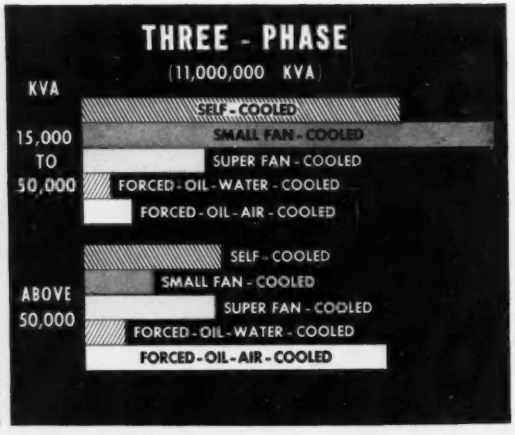
From this study three trends stand out. First, kva ratings are still climbing, with units as high as 145,000-kva already built and even larger ones being considered. Second, *three* 3-phase units are now being built for every *one* single-phase, as compared to 1940 when there were more orders for single-phase units than for 3-phase. Finally, there is a pronounced trend toward forced cooling, particularly in the higher kva sizes.

This last trend is particularly important because it indicates that a lot more thought is now being given to the economics of cooling than in the past. Today, with at least six types of cooling to choose from, an intelligent analysis of each installation (see opposite page) is necessary if lowest overall costs are to be achieved.

With unequaled experience in building all types of cooling, General Electric is ready and able to provide you with the most economical transformer for your particular application. You can take advantage of this experience by consulting with your G.E. representative before you buy your next power transformer.

This is the way transformer purchases now divide in respect to types of cooling




THREE - PHASE
(11,000,000 KVA)
KVA
15,000 TO 50,000
SELF - COOLED
SMALL FAN - COOLED
SUPER FAN - COOLED
FORCED - OIL - WATER - COOLED
FORCED - OIL - AIR - COOLED
ABOVE 50,000
SELF - COOLED
SMALL FAN - COOLED
SUPER FAN - COOLED
FORCED - OIL - WATER - COOLED
FORCED - OIL - AIR - COOLED

NO LONGER IS SELF-COOLING DOMINANT. Below 50,000 kva, half of all new single-phase transformers are fan cooled while another 5% are super-fan cooled. Including units above 50,000 kva, about 13% are forced-oil-water-cooled.

IN 3-PHASE TRANSFORMERS, super-fan cooling is definitely on the increase, and now accounts for 23% of the total. Most startling is that 40% of all units above 50,000 kva are now forced-oil-air-cooled.

Type of Cooling*	First Cost (in per cent)	Impedance (OA = 1)	Core Loss (OA = 1)	Copper Loss (OA = 1)
Self-cooled (OA)	100	1.0	1.0	1.0
Fan-cooled (OA/FA)	91	1.25	0.85	1.35
Water-cooled (OW)	85	1.0	1.0	1.0
Super-fan cooled (OA/FA/FA)	80	1.67	0.75	2.1
Forced-oil-air cooled (FOA)	75	1.5	0.8	2.0
Forced-oil-water cooled (FOW)	70	1.5	0.8	2.0

Note: Approximate figures above are based on a 50,000 kva, 138-kv transformer.
* Substation units are usually types OA, OA/FA or OA/FA/FA. Generating station units are usually FOA or FOW.

These are the considerations affecting the choice of transformer cooling

FIRST COSTS—In the table above, different types of cooling are arranged in descending order of first costs. ***Relative*** first costs will generally fall in this same order for units 50,000 kva and higher.

IMPEDANCES—Minimum standard impedances for FOA and FOW transformers are nearly 50% higher than for self-cooled units. However, this is generally a minor problem at step-up stations where losses have minimum cost and where voltage drop can be compensated for by modern generators.

LOSSES—To first cost must be added both the expense of supplying energy losses (copper and iron), and the amount of lost revenue which results from having to supply these energy losses. The total loss can be capitalized and added directly to first cost, or can be computed on an annual basis and added to yearly carrying charges.

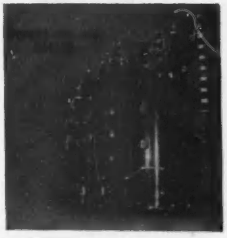
INSTALLATION COSTS—These must be added to above costs, but will vary widely with conditions at the site. Generally, minimum installation cost is achieved with FOA transformers. All General Electric transformers are shipped in an *upright* position—a factor which greatly facilitates installation.

A Special Look at the Super-Fan-Cooled Transformer

This comparative newcomer, with its three separate ratings, is fast increasing in popularity. Its first cost is between the self-cooled and forced-oil types—so it is the least expensive transformer if you want to avoid oil pumps. It can be purchased without fans where future load growth cannot be predicted—and fans added as necessary. Finally, the industry seems to favor the super-fan-cooled transformer for unattended areas, probably because it has at all times a self-cooled rating.

Through the courtesy of American Institute of Electrical Engineers, we have reprinted an article, "The Choice of Main Power Transformers for Generating Stations," which is pertinent to this whole question. Ask for GET-2225. Write to Apparatus Department, General Electric Company, Schenectady 5, New York.

401-15



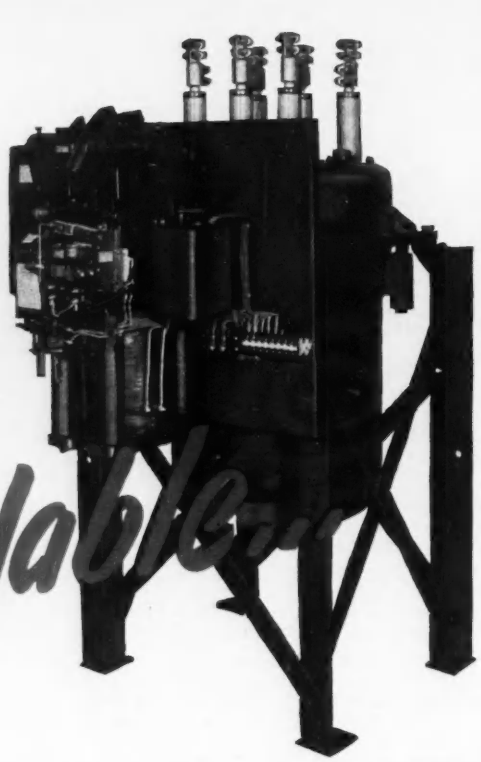
GENERAL ELECTRIC

ALLIS-CHALMERS

TYPE DZ-LARGE INDOOR

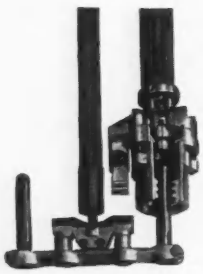
INDUSTRIAL

Oil Circuit Breakers



Dependable

Electrical Protection for Industry



YOU CAN GET full electrical protection for equipment in your plant with the 8-cycle DZ oil circuit breaker. It is liberally and compactly designed to meet your requirements economically.

Mechanically and electrically trip-free, it combines reliability in operation with the advantages of the single break *Ruptor* interrupting device.

The DZ comes in a wide range of ratings. Mounting with framework or for cubicle, solenoid or manual closing, standard operating voltages, all in accordance with ASA standards.

For more information, see your nearby A-C sales office. Or write Allis-Chalmers, Milwaukee 1, Wis. for bulletins 71B6129D (DZ-60B, DZ-100B, DZ-200B) and 71B6179C. (DZ-40B) A-3381

Ruptor is an Allis-Chalmers trademark.

TYPE	RATED K.V.	MINIMUM KV AT RATED KVA	RATED AMPS.	KVA INT. CAPACITY
DZ-40B	7.2	2.3	600	100,000
			1200	100,000
			2000	100,000
DZ-60B	13.8	4.0	600	150,000
			1200	150,000
DZ-100B	13.8	4.0	1200	250,000
DZ-200B	13.8	6.6	1200	500,000
			2000	500,000

The circuit interrupting efficiency of the *Ruptor* arc interrupting device is the result of simple, yet highly effective contact structure. Its effectiveness is proved over many years of service in these and larger power oil circuit breakers.

ALLIS-CHALMERS

EXCHANGING GREETINGS at Great Lakes AIEE meeting are Gov Walter J. Kohler of Wisconsin, left; J. R. North, district vice president; C. C. Crane, district committee head; C. P. Wagner, Westinghouse Electric Corp; and AIEE Pres T. G. LeClair

Use Europe's Research Personnel, Hobson Urges Great Lakes AIEE

Inflation seems to have provided an inexhaustible supply of dollars, but unfortunately the supply of research personnel cannot be increased by devaluation of existing individuals, Dr J. E. Hobson, director, Stanford Research Institute, told 600 engineers at the Great Lakes district meeting of American Institute of Electrical Engineers in Madison, Wis.

Dr Hobson urged use of personnel of Western European countries as one source of additional research manpower for the mobilization economy.

T. G. LeClair, Institute president, said there was a need for more and better papers, such as the district meetings fostered, and the publication of more papers.

Induction generators in central power stations have certain economic advantages, T. C. Tsao, Consolidated Edison Co, reported in a paper prepared jointly with N. F. Tsang of the University of Minnesota. Rotor design is simplified and no exciter, voltage regulator, synchronizing, or frequency control equipment is required for this type of generator.

Voltage regulation on rural distribution circuits can be accomplished economically with low-cost, pole-mounted step-type voltage regulators, H. C. Brem, Allis-Chalmers Manufacturing Co, said. He reported such regulation is available at a cost ranging from $2 to $4 per kva.

Duration of voltage dips affects visibility of cyclic flicker, according to data presented by L. Brieger, Consolidated Edison Co. The report was based on a study of flicker caused by frequency-changer welders.

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Production Is Stressed before Interstate Group

The utility sales accent today is on performance in the area of production, J. R. David, Industrial Sales Manager of the Cleveland Electric Illuminating Co, told of the Interstate Power Club at a meeting in New York May 14.

The first job of everyone for the "duration" is to bring plant and machine together in productive partnership, he said, then to see that this partnership is put to work at capacity, turning out military and civilian products essential to the national interest.

There are plenty of good industrial relighting jobs to be had by those who are willing to work hard to get them, according to S. B. Williams, Sylvania Electric Products, Inc. Many may be small, he said, but the fellow who isn't a prima donna and is willing to take the small jobs has a much better chance of landing the bigger jobs because he has had more experience. He said the added load for relighting in the average small factory involves more money per kilowatt-year than most other industrial loads.

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PEA Conducts Survey on Equipment Protection

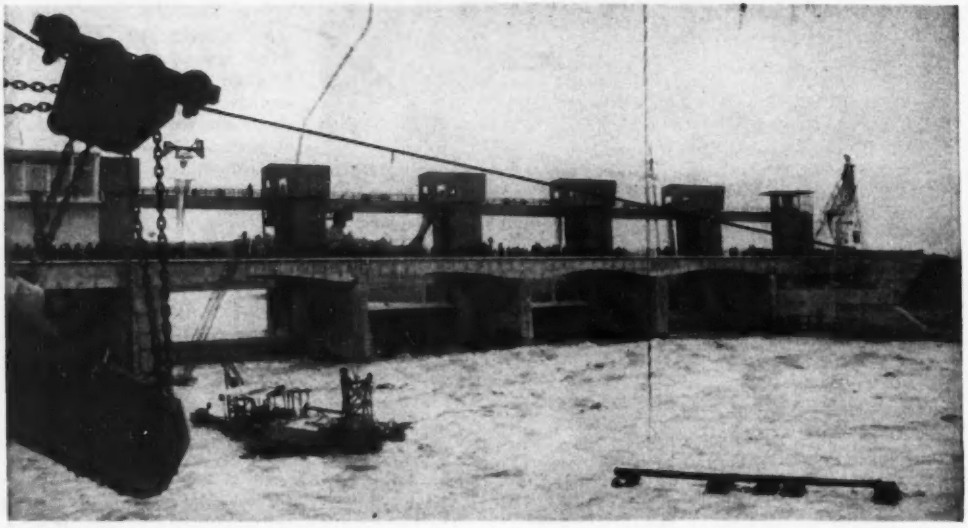
Practices of utilities in Pennsylvania vary widely in the matter of ownership and protection of electrical equipment in substations supplying large light and power customers. About 60% of the power transformers, 15 kv and below, in customer stations are owned by power companies. But in the higher voltage classes, 15 kv to 46 kv, ownership is 45% by power companies and 55% by customers.

These facts were brought out in a survey of 18 utilities operating in Pennsylvania sponsored by the Relay Committee of Pennsylvania Electric Association. Findings of the survey were reported at the regular spring meeting of the committee in Scranton, Pa., May 17 and 18, by J. E. Lange, Duquesne Light Co.

Regardless of ownership of substation equipment, the survey showed that 12 out of 18 utilities require that the power company specify the type of protection and calculate settings for the customer's first line of protection, to coordinate with the power company's fault protective equipment.

Eleven companies further require that customers apply the relay settings to relays included in this first line of protection. Of the 12 companies, eight specify protection for other relays of the customer, either as a suggestion or at the customer's request, and 11 calculate settings for these relays.

H. Denmead and K. N. Reardon, West Penn Power Co, said coordination between a power company and its customers is an activity basic to the entire concept of public service. Without proper sectionalizing of electrical faults, confidence is lost, customers are dissatisfied and equipment is damaged or destroyed.



CASTEL GIUBILEO DAM of Terni Electric Co near Rome is first of several new power plants to be completed in Italy. Dam holds water pumped from Tiber River into an artificial lake. It is expected to produce 70 million kwhr annually.

3 Utilities Sign with AEC to Study Use of Atomic Energy in Industry

Private electric utilities have taken the lead in studies to determine the feasibility of industrial use of atomic power.

The U. S. Atomic Energy Commission has announced that four groups —each including one or more power companies—will make studies of the practicability of private industry building and operating nuclear reactors. Both fissionable products and power would be produced.

Negotiations are nearing completion between AEC and these four groups: Monsanto Chemical Co and its associate, Union Electric Co of Missouri; Detroit Edison Co and Dow Chemical Co, Midland, Mich; Commonwealth Edison Co and Public Service Co of Northern Illinois; and Pacific Gas & Electric Co and Bechtel, San Francisco.

Agreements have been signed with the Detroit Edison-Dow group and the Commonwealth Edison-Public Service group. AEC's terms have been accepted by PG&E-Bechtel, and negotiations are continuing with the Monsanto group.

No additional groups will be admitted at this time, AEC said. This is because of other demands on technical personnel at AEC installations, principally at the Argonne National Laboratory, Chicago, and the Oak Ridge National Laboratory, Oak Ridge, Tenn. The program does not include a special study of an isotope-producing reactor which Bendix Aviation Corp, Detroit, proposes to make.

Under terms of the agreements, the companies will bear all costs of the studies except costs to AEC and its contractors in making information available to the industry groups. The studies will be limited to 12 months from the signing of the letter of agreement, and only 15 company employees will be granted security clearance for access to reactor installations.

Here is the four-point study program outlined by AEC:

1. Engineering feasibility of designing, constructing, and operating a materials and power-producing reactor
2. Economic and technical aspects of building such a reactor within the next few years
3. Research and development work needed, if any, before such a project could be undertaken
4. Recommendation—in a report to the commission—concerning a reactor project and industry's role in such a project.

•

Draper, 75, Renominated for 5-Year FPC Term

Claude L. Draper, "dean" of the Federal Power Commission, has been renominated for a five-year term.

Draper, 75, was first appointed to the commission in 1930 by President Hoover. The nomination is his sixth to FPC and his fifth to five-year term.

A native of Wyoming, Draper was chairman of the State Board of Equalization and the Wyoming Public Service Commission from 1919 to 1930.

•

'Palladium Medal' Offered

The Electrochemical Society has established "The Palladium Medal" to be awarded biennially for original and outstanding contributions to the knowledge of corrosion and its control. The medallist will be selected by a committee of scientists from the fields of corrosion and electrochemistry. First award will be made this fall.

Company Can Wreck Ad Program, EEI Head Tells PUAA Convention

(*See Front Cover*)

The best advertising or public relations program ever devised can't offset company policies that work in opposite directions, Louis V. Sutton, president of the Edison Electric Institute, said recently in New York.

He addressed the 30th Annual Convention of the Public Utilities Advertising Association, which met there May 17-19.

Warns Against Carelessness

"A good public relations program built painstakingly over the years," Sutton said, "can be destroyed through carelessness on the part of the company or misunderstanding on the part of the public. This misunderstanding often results from indifference to the job of telling the truth or neglecting to tell it in understandable terms."

The utilities are not spending enough to get their story to the public, the EEI president said. In 1950, he pointed out, they spent $16 million for advertising, compared with $27 million spent by one company alone to advertise soap.

A "pitifully small amount" is being spent by the companies to support industry associations important to public relations, Sutton said. ECAP, with 60% of the industry participating, spent $1.4 million last year; EEI, with 85%, $800,000; NAEC, with 66%, $400,000; and PIP, with 70%, $300,000.

Canfield Elected President

This budget, totalling $2.9 million, should be increased to at least $4 million, with ECAP getting half, Sutton said. Last year, he pointed out, the industry's advertising program as developed by ECAP ranked 98th among 100 leading advertisers in the country.

At the convention's business session, John E. Canfield, public information director of Wisconsin Power & Light Co, was elected president. He succeeds William B. Hewson, assistant vice president of Brooklyn Union Gas Co.

Other officers elected were first vice president, Paul L. Penfield, Detroit Edison Co; second vice president, Walter G. Heren, Union Electric Co of Missouri; third vice president, C. Fred Westin, Public Service Electric & Gas Co; secretary, George G. Hanel, Connecticut Light & Power Co; and treasurer, Mead Schenck, Interstate Power Co.

Canfield has been employed by Wisconsin P&L since his graduation from the University of Wisconsin in 1930 as an electrical engineer. He spent three years as an industrial power salesman and then was sent to Edgerton as local manager. He returned to Madison in 1937 as commercial sales manager. In 1941 he was made special company representative at the Badger Ordnance Works, assuming his present position at the end of the war.

•

Cites Need to Improve Utility Public Relations

Utility managers today must be sold on the profitable use of public relations; they must become social engineers, not just electrical engineers, Mrs. Denny Griswold, editor and publisher of Public Relations News, said at the PUAA convention.

"There is more lip service and Bourbonism about public relations in the utility industry than in any other industry in America," Mrs. Griswold said.

Communication from the utilities to the public, she said, has too much of the negative in it, and too often is used only when the utility has a personal ax to grind, as when it is seeking a rate increase.

"These drives are sporadic," she said, "and no public relations can be effective unless continuing and if the drive is made in a climate of believability."

Utilities have poor press relations, she contended, because they do not give newspapers their stories.

"Utility executives, the editors tell me, cannot be reached. And when they can be reached, they won't tell editors and reporters anything that is not off the record."

In the field of annual reports, Mrs. Griswold said, the utilities are far superior, public relations-wise, to almost every industry in the country.

Marion Harper, Jr, president of McCann-Erickson, Inc, urged that utilities use "information" type advertisements to take the consumer into their confidence, if the company wants to propagate good will.

"Ads today should have matter-of-fact content and feature human interest, not glowing generalities about the free enterprise system. Get to specific cases."

Opinion surveys show, Harper said, that the persons best informed are apt to be most favorable to a utility program; those who think they know the company best are apt to express approval of new company actions even though they know nothing about the action; and the retention of opinions over a long period of time is better than retention of facts brought out in a spot campaign.

•

Atomic Production Plant to Be Built Near Denver

A new plant concerned with production of atomic weapons will be built on a 4-sq-mile site in the Rocky Flats area near Denver, the Atomic Energy Commission has announced.

The plant, a secret operation, will be administered by AEC's Santa Fe operations Office, which is responsible for research, development, production, and testing of atomic weapons. Estimated cost is $45 million.

Dow Chemical Co, Midland, Mich., will operate the plant.

Long Island Is Jinxed

Jinx Falkenburg, of TV's "Tex and Jinx" interrupted a talk she was giving at the PUAA Convention to ask:

"Oh, by the way, is anyone here from Long Island Lighting?" Someone admitted that he was.

"Well," said Jinx, "our lights went down the other night out in Manhasset, just when we were going on the air from our home. I was going to call you people up, but as long as you're here, could you do something about it?"

The Long Island man promised he'd try.

PEA INDUSTRIAL SALES Conference speakers talk over program with Conference Chairman F. F. Dickmann, West Penn Power Co, seated at right. Speakers were (standing) C. T. Shoch, Pennsylvania Power & Light Co; J. Howard Blake, U. S. Dept. of Commerce; and (seated at left) T. O. McQuiston, Metropolitan Edison Co

Transformers, Switched Capacitors Discussed at Pennsylvania Meeting

Dry-type transformers, use of switched capacitors, and operating experience of unit substation equipment were main topics of discussion at a joint meeting of the Transmission and Distribution and Electrical Equipment Committees of Pennsylvania Electric Association in Reading, Pa.

Transformer losses at actual operating temperature, not at some arbitrarily chosen temperature, should be considered when determining operating characteristics of transformers at high temperatures, according to E. B. Treanor, General Electric Co. He pointed out that transformers might be classified on the basis of ambient temperature and load characteristics.

M. L. Manning, Pennsylvania Transformer Co, said cost of class H laminates has decreased 15% in the last month and predicted that volume production of class H transformers will make their price competitive with that of class B transformers. He said that in air class H transformers have a 100 C hottest-spot temperature advantage over class B and proposed a 150 C rise above ambient as a basis for rating class H transformers.

Experience of General Electric Co, according to A. E. Peltosalo, is that about 50% of the shunt capacitors on utility systems are of the fixed type and that systems are looking to installation of the switched type to provide further operating benefits. Since 1930, he said, the amount of capacitors installed per unit of generating capacity has increased from 1 kvar per 100 kw to 1 kvar for less than 4 kw. In the next ten to 15 years, capacitors could be installed so that this ratio is decreased to 1 kvar for every 2 kw, he said.

Asks Salesmen of PEA to Build Electrical Use

The key job of power sales engineers is to persuade customers the electric utility companies are prepared in peace or war.

This was stated by T. O. McQuiston, vice president of Metropolitan Edison Co, Reading, Pa., at an Industrial Sales Conference sponsored by Pennsylvania Electric Association at Wernersville, Pa.

McQuiston said electric utility sales persons must take the aggressive approach and continue to make plans for today and tomorrow without fear of the future. He said the job is to build electrical use in time of peace or war, in years of prosperity or depression.

The major overall opportunity for the power salesman in the defense program is the accomplishment of the "guns and butter" double standard of living, according to Clarence T. Shoch, Pennsylvania Power & Light Co. The power salesman has a large stake in knowing, intimately, of the government's plans for controlling the use of critical materials and manpower. Locally, he must help in the equitable distribution of raw materials so that small and large plants alike may continue to make maximum production contributions, Schoch said.

W. H. Kahler, Westinghouse Electric Corp, said there is a trend toward the use of contactors with push button control and overhead feeders and distribution panels for industrial lighting. The sooner starters are eliminated in fluorescent lighting the less maintenance troubles industrial plants will have, he said.

•

To Add 75,000-Kw Unit

Florida Power & Light Co has announced it will add a 75,000-kw generating unit to its recently completed plant at Cutler. The new unit, to be installed by 1952, will bring the plant's rated capacity to 155,000 kw and make it the largest in Florida.

•

Doherty to Head PUC

C. L. Doherty has been elected chairman of the South Dakota Public Utilities Commission and Fred Lindekugel vice chairman for two-year terms expiring Jan. 3, 1953.

L-M's new EEI-NEMA...standard subway transformer gives you ROUND-WOUND construction *Plus*...

- reduced tank cross-section for smaller manholes
- cover-mounted high voltage wiping sleeves
- sidewall-mounted low voltage bushings with spade-type terminals
- sealed construction with welded cover
- gasketed handhole
- unexcelled performance—low losses; high short-time overload capacity
- ORTO®—Oxidation-Resistant Transformer Oil—inhibited for longer life

L-M's Round-Wound® Subway transformers fully meet the new EEI-NEMA standards. They are now available. In addition to having the well-known advantages of L-M Round-Wound design, they take less vault space, have better sealing, offer greater ease in making connections, and have the advantage of being filled with L-M's ORTO.

Get the whole story! Ask the L-M Field Engineer for details; or write Line Material Co., Transformer Division, Zanesville, Ohio (a McGraw Electric Company Division).

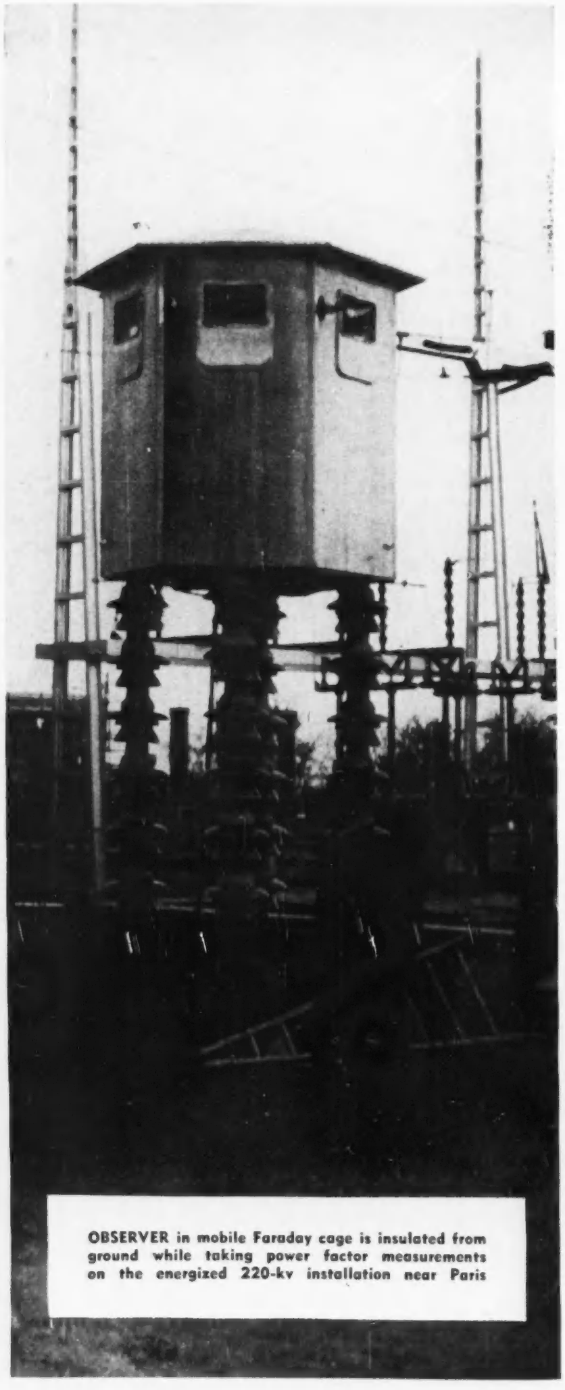
51

LINE MATERIAL... Transformers

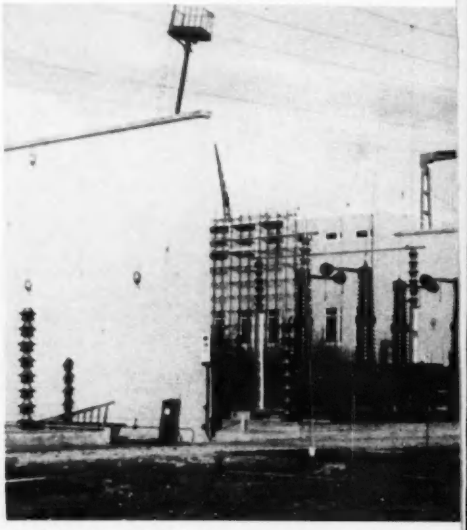
LM

Complete Coordinated Equipment for Distribution Today

Now in Production

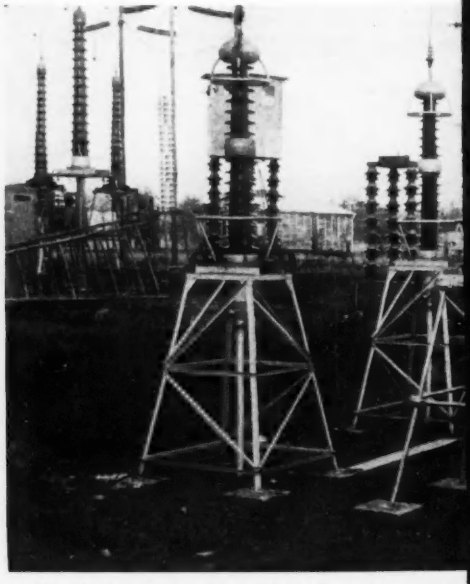


OBSERVER in mobile Faraday cage is insulated from ground while taking power factor measurements on the energized 220-kv installation near Paris

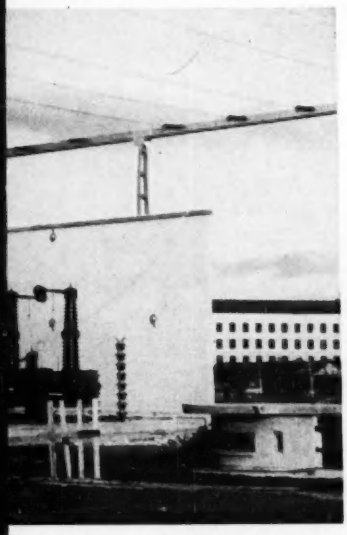


FAULT CURRENT of 3,000 amp can be supplied to test the
testing station. Barriers at the sides guard against comr

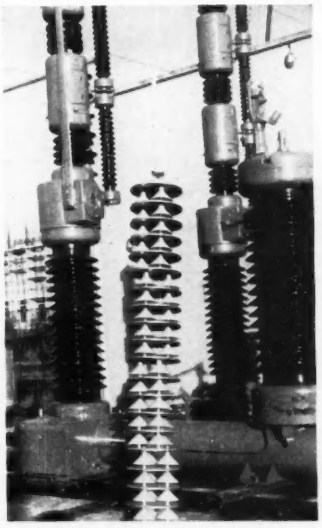
French Test 22



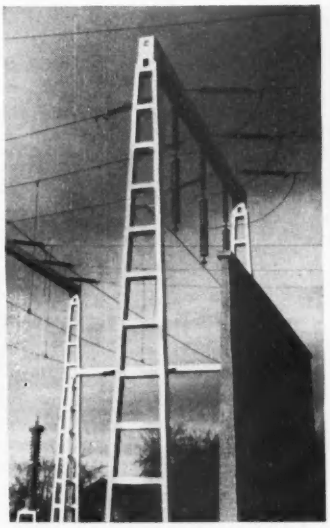
TERMINALS of experimental cables with very thin paper
is directly behind one at left. In the left background ar



220-kv airblast circuit-breakers at Fontenay
nication of disturbances in case of failure

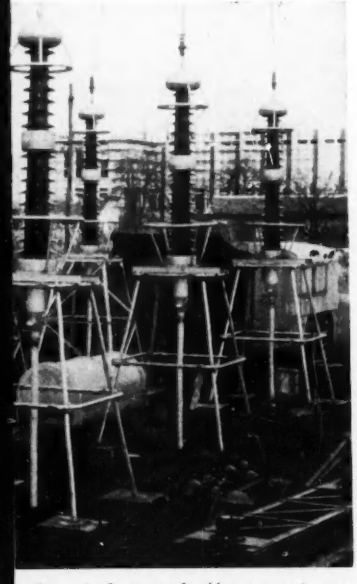


VOLTAGE DIVIDER used in potential measurements is stack of polyethylene cones



BUS FRAME at breaker test-cell has square channel legs with welded cross-members

0-Kv Cables at New Station Near Paris



e shown in foreground. Measurement cage
terminals of two British makes of cables

Electricite de France has established a new high voltage testing station at Fontenay, near Paris, to study cables, terminations, circuit interrupters, and other equipment contemplated for use on its expanding 225-kv system.

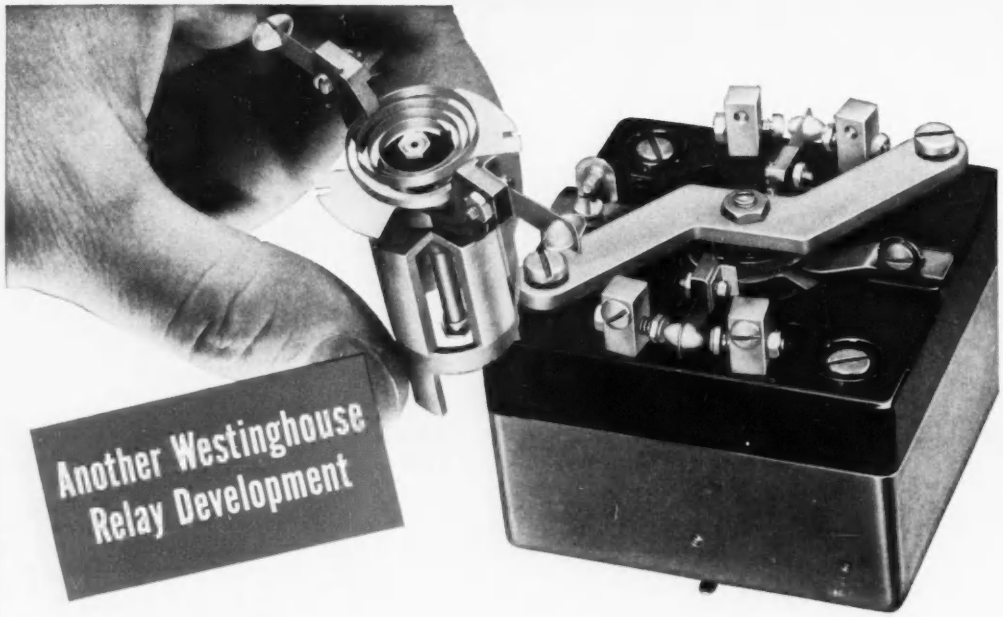
Three types of cable are already under test: the high-pressure, oil-filled cable of Les Cables de Lyon, in which very thin paper is used; the self-contained compression cable of Enfield Cables, Ltd, of London; and the gas-filled cable of British-Insulated-Callender's Construction Co.

Terminals for both British types were made by Taylor-Tunnicliff of England. Despite their large-diameter porcelain bases, they are designed for 200 psi. The French cables carry oil at about 200 psi, but the terminals are made in two parts.

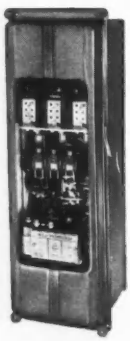
Les Cables de Lyon began using thin paper insulation in its cables after tests inspired by Louis Domenach, its chief engineer, proved successful. Domenach got the idea from rolling his own cigarettes.

"That being a lost art in America," he commented recently, "it is not strange that thin paper cable insulation should be a delayed art there."

The photographs were taken by Kenneth S. Wyatt, cable engineer, Habirshaw Cable & Wire Division, Phelps Dodge Copper Products Corp, during a recent technical trip through Europe on which he studied 220-kv cable developments.



New double-loop directional element ELIMINATES VIBRATION...



The Type HZM, and Type HZ, high-speed impedance relays are now available with the new double-loop directional element.

Westinghouse High-Speed Impedance Relays now offer you extra operating benefits. A new directional element, featuring double-loop design, eliminates troublesome 120-cycle vibration.

The torque produced in each loop is a double frequency sine wave. However, as these waves are 180 degrees out of phase and offset in the same direction, the net torque in both loops is a constant value—eliminating vibration. The result is an efficient, high-speed directional element, providing low burden, good sensitivity in a sturdy rugged enclosure . . . a sharper intelligence for vital relaying applications.

For complete information write for Silent Sentinel Bulletin No. B-4794. Address: Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pennsylvania. J-40402

YOU CAN BE SURE.. IF IT'S
Westinghouse
RELAYS

Arkansas Project OK'd by Secretary Chapman

Seven new hydroelectric plants with a total proposed installed capacity of 104,800 kw are included in the Bureau of Reclamation's Gunnison-Arkansas Project which has just been approved by Secretary of the Interior Oscar L. Chapman.

The new plan calls for a six-mile tunnel through the Continental Divide and a 50-mile canal system which would divert 69,200 acre-ft of water from the western to the eastern slope of the Rockies in Colorado. In addition to power, the project would supply water to help 322,000 acres of irrigated land and supplement domestic water supplies in Colorado Springs, Pueblo, and eight other Colorado communities.

The seven proposed power plants are: Elbert, 8,700 kw; Granite, 19,200 kw; Wapaco, 16,500 kw; Princeton, 11,700 kw; Johnson, 15,000 kw; Salida, 22,700 kw; and Pueblo, 11,000 kw.

Congress must approve the project and appropriate funds before it can be constructed.

•

St. Lawrence Tour Set for House Subcommittee

Latest move in the long St. Lawrence fight is a new proposal to tour the site of the controversial power project.

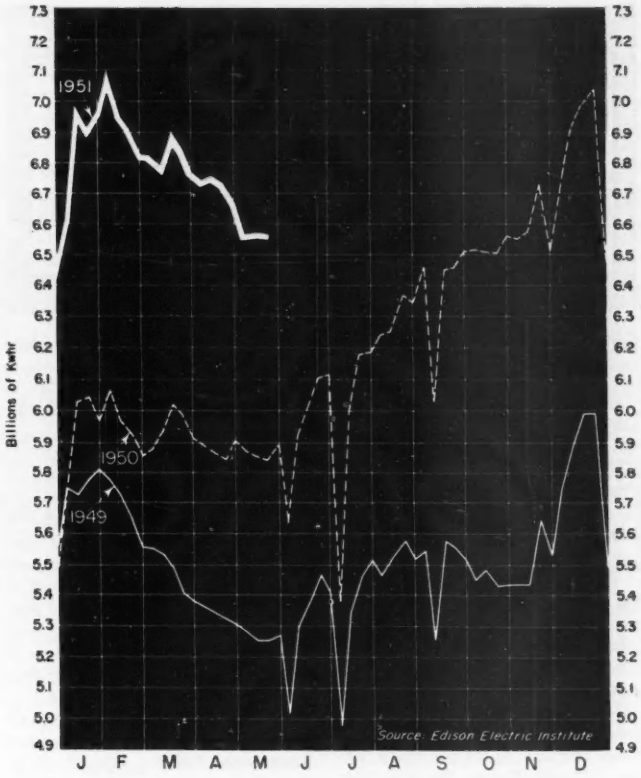
A House resolution to authorize a subcommittee of the House Public Works Committee to make a new, on-the-spot investigation of the St. Lawrence Seaway and Power Project has been reported to the House floor by the Rules Committee for action there.

•

Interior's Case Against the FPC Set for Sept. 4

The U. S. Fourth Circuit Court of Appeals will consider the Department of the Interior's protest against the Federal Power Commission licensing Virginia Electric & Power Co to construct the Roanoke Rapids Project Sept. 4 in Richmond, Va.

The date was set after Interior had asked for more time, following tentative scheduling of the review for the court's June session in Asheville, N. C.



Output Week Ended May 19—6,559,218,000 Kwhr

Weekly Output, Millions Kwhr

1951	1950	1949
May 19 6,559	May 20 5,845	May 21 5,255
May 12 6,567	May 13 5,864	May 14 5,527
May 5 6,560	May 6 5,868	May 7 5,284
Apr 28 6,674	Apr 29 5,902	Apr 30 5,304
Apr 21 6,730	Apr 22 5,846	Apr 23 5,326
Apr 14 6,747	Apr 15 5,863	Apr 16 5,343
Apr 7 6,736	Apr 8 5,898	Apr 9 5,360
Mar 31 6,767	Apr 1 5,912	Apr 2 5,378
Mar 24 6,848	Mar 25 5,993	Mar 26 5,404
Mar 17 6,903	Mar 18 6,015	Mar 19 5,496

Percent Change from Previous Year

	May 19	May 12	May 5
New England	+10.6	+13.3	+10.1
Mid-Atlantic	+11.1	+12.3	+ 9.5
Central Industrial	+13.5	+13.6	+12.6
West Central	+12.3	+11.0	+ 9.7
Southeast	+12.9	+11.8	+14.4
South Central	+16.6	+13.7	+17.9
Rocky Mountain	+ 9.9	+ 9.9	+ 8.8
Pacific Coast	+10.0	+ 8.9	+ 9.4
Total United States	+12.2	+12.0	+11.7

MEETINGS

Edison Electric Institute
Electrical Equipment Committee, Hotel Biltmore, Los Angeles, Calif., May 28-29; Annual Convention, Shirley Savoy Hotel, Cosmopolitan Hotel, Denver, Colo., June 4-7.

New York Meter Engineers Committee
Hotel Statler, Buffalo, N. Y., June 7-8.

★**American Society of Mechanical Engineers**
Semi-Annual Meeting, Royal York Hotel, Toronto, Canada, June 11-14; Fall Meeting, Hotel Radisson, Minneapolis, Minn., September 25-28.

Northwest Electric Light & Power Association
Accounting Section, Boise Hotel, Boise, Idaho, June 14-15.

Canadian Electrical Association
Annual Convention, Algonquin Hotel, St. Andrews, New Brunswick, June 18-21.

American Society for Testing Materials
Annual Meeting, Chalfonte-Haddon Hall, Atlantic City, N. J., June 18-22.

★**Michigan Electric Light Association**
Annual Convention, Mackinac Island, Mich., June 24-27.

American Institute of Electrical Engineers
Summer General Meeting, Royal York Hotel, Toronto, Canada, June 25-29; Pacific General Meeting, Multnomah Hotel, Portland, Ore., August 20-23.

Pacific Electronic Exhibit
Civic Auditorium, San Francisco, August 22-24.

Illuminating Engineering Society
National Technical Conference, Hotel Shoreham, Washington, D. C., August 27-30.

★**Northern California Electrical Bureau**
Annual Exposition, Civic Auditorium, San Francisco, September 1-9.

★**Rocky Mountain Electrical League**
Fall Convention, La Fonda Hotel, Santa Fe, N. M., September 9-12.

★ Addition this week

YIELDS (%) — Operating Electric Utility Securities

Quality	Bonds			Preferred Stocks			Common Stocks		
	1st	2nd	3rd	1st	2nd	3rd	1st	2nd	3rd
DATE									
1951									
May 17	2.89	2.93	3.06	4.00	4.29	4.61	5.60	6.36	7.17
May 10	2.88	2.94	3.04	3.99	4.26	4.60	5.59	6.32	7.11
END OF QTR.									
1st 1951	2.87	2.93	3.00	3.96	4.19	4.52	5.47	6.20	7.13
4th 1950	2.65	2.67	2.78	3.86	4.14	4.51	5.80	6.54	7.44
3rd 1950	2.66	2.67	2.76	3.81	4.08	4.46	5.70	6.54	7.25
2nd 1950	2.68	2.66	2.74	3.79	4.03	4.38	5.38	6.51	7.50

Data: Reis & Chandler, Inc.

GPU Agrees to Dispose of Philippine Properties

General Public Utilities has agreed, subject to the approval of the Securities and Exchange Commission, to divest itself of its subsidiaries in the Philippines and some of its properties in this country in order to comply with the Public Utility Holding Company Act of 1935.

The agreement was reached with the staff of SEC's Public Utilities Division after hearings on the company's integration program held earlier this month. The original proceedings began in 1941.

GPU will continue to operate its four principal subsidiaries—Pennsylvania Electric Co, Metropolitan Edison Co, Jersey Central Power & Light Co, and New Jersey Power & Light Co—as a single integrated system.

The holding company will dispose of the gas properties of Jersey Central and the electric properties of Northern Pennsylvania Power Co.

Manila Electric Co and Escadero Electric Service Co, GPU's Philippine subsidiaries, also will be disposed of ultimately. SEC ordered in 1942 that GPU divest itself of these subsidiaries but suspended the order temporarily in 1945. The commission's public utilities staff has indicated it would recommend the lifting of this suspension.

•

State Fights Tax Decision

Virginia's attorney general has filed appeals with the Virginia Supreme Court of Appeals in an attempt to regain tax receipts on money of Virginia utilities deposited in other states. He seeks reversal of three decisions of the State Corporation Commission granting rebates of $7,817 to Potomac Electric Power Co, $2,961 to Appalachian Electric Power Co, and $477.06 to Virginia Electric & Power Co for taxes paid on money deposited outside the state.

•

Federal Donations Not Part of Project Cost

Federal contributions to the construction of publicly owned, licensed hydroelectric projects are not part of the original cost of the project. That's the finding of the Federal Power Commission in a new determination of actual legitimate original cost for four public power projects.

The licensees and projects involved are Brazos River Conservation and Reclamation District, Mineral Wells, Tex., Possum Kingdom Project; Platte Valley Public Power and Irrigation District, North Platte, Neb., Sutherland Project; Central Nebraska Public Power and Irrigation District, Hastings, Neb., Kingsley Dam; and Loup River Public Power District, Columbus, Neb., Loup River Project. They had received donations from the Works Progress Administration, Public Works Administration, and Federal Works Agency.

In each case the public group had contended that in event of recapture under the FPC license federal donations should be a part of a "net investment." Federal donations, the commission declared, "are not to be construed as entitling licensees to receive payment from the government in the event of recapture at the end of the license term which would duplicate donations previously made by the federal government. Nor are they to be used to enable licensees to claim rates or other benefits under regulation at the expense of the consuming public during the period of operation of the project under license. . ."

FINANCIAL BRIEFS

Missouri Power & Light Co has been granted permission by the Missouri Public Service Commission to sell its facilities in Clinton, Mo., to the Missouri Public Service Co for $650,000. Missouri P&L has applied to the Securities and Exchange Commission for authorization of the plan.

Birmingham (Ala.) Electric Co has reached an agreement to sell its transportation system to a group of local businessmen for $2,012,500. The sale was ordered by the Securities and Exchange Commission when Alabama Power Co acquired a controlling interest in Birmingham Electric. Final transfer of the streetcar and bus system is subject to approval by several government agencies.

Virginia Electric & Power Co stockholders have voted to permit an increase in the amount of authorized preferred stock from 500,000 to 1 million shares and an increase in common from 6 to 7 million shares.

Securities and Exchange Commission has authorized the purchase by Utah Power & Light Co of the electrical distribution lines and facilities and a transmission line owned by Arco, Idaho. Utah Power will pay $30,000 for the transmission line and $70,000 for the other facilities.

Electric Utility Financing—May 12-19

Company	Description	Amount of Offering (000)	Offering Price	Yield at Price to Public
Common Stock				
Illinois Power	203,594 sh new money	$6,846	$33.625	6.54%

SCHEDULE FOR FOLLOWING WEEK

Common Stock—Virginia Electric & Power, 449,674 sh new money, $9 million; Kentucky Utilities, 260,071 sh new money, $3.5 million.

IN THE INDUSTRY

KEN KOST

Oscar Littleton Chapman has returned to his first profession, the law. Of course, he is still Secretary of Interior and has not appeared in any courts. But at his recent appearance before the Senate subcommittee on appropriations, the little man with the big ability was nothing more than a lawyer. Seldom does a defendant have as sincere and capable a counselor as had the Interior Department and federal power on that day.

The background for his appearance was the House vote on Interior appropriations for 1952. The Representatives were a little rough. They cut Interior's requests from $559 million to $520 million. And amazingly they used their pruning shears on some federal power projects. Chapman was appealing to the Senators to overrule the lower house. Naturally not all his plea (statement) concerned power activities—only nine of the 24 pages, and four others were introductory. But for the industry the nine were the interesting ones.

Mild Language but Strong Verbs

The Secretary got off to a good start by asserting that if the Appropriations Bill became law as passed by the House, it would "not only weaken the defense program of this country, but will impair the future well-being of its people." And with this he was on his way. Like any good lawyer, Chapman's language was mild, but his verbs (and some of his adjectives) were strong. Such verbs as weaken, whittled, cripple, impair, exploited, strangled, thwarted, denied, seriously affect, nullify, destroy, prohibit, prevented, endanger, hamstring, retard, and delay appear in the statement. And the object (victim) of the verb in each case was the Interior Department or its aims. Chapman didn't like this as he said:

"Due to the importance of our natural resources to the economic and military strength of this country, there is cause for real alarm over the action taken by the House. However, this is not the first time that there has been a combination of forces to weaken the administration of the public estate so that our resources can be exploited to the financial advantage of a few selfish groups. The pattern of these attacks is always the same—efforts by special interest groups seeking to get control of valuable natural resources by denying appropriations to develop and utilize such resources for the welfare of all the people as provided by law."

Keating Amendment an 'Insidious Device'

And getting more specific, Chapman didn't like the Keating amendment to the Appropriations Bill prohibiting power line construction by Reclamation in areas where it has "wheeling" agreements with private utilities.

"The Keating amendment is the most insidious device that could have been used to undo much of the work that has been accomplished so far in reaching 'wheeling' agreements. It puts the department at the complete mercy of the private utilities since it would prohibit initiating construction by Reclamation of all power facilities for whatever purpose they might serve."

And down the line of appropriations slashes Chapman went his merry way. Reduction after reduction was harmful. No mention was made that all of the people pay for federal power but just a few profit. No mention that the private companies are often hampered by bureau activities. No mention that federal power is the biggest and only power trust in the nation and is still growing. No mention that tax-free federal power has no qualms about forcing private companies out of business and coercing them into unprofitable deals.

As any lawyer, but not all citizens, knows, facts are two-sided. Lawyer Chapman gave his side. Now it's up to the company representatives to present their case. To be most effective, it should deal in broad policies as well as specific cases. Then the legislative judges can decide. And their decision will affect all of the people, especially in their pocketbooks.

TECHNICAL NOTES

ARCHER E. KNOWLTON

Safety blocks would have saved the life of a man checking instruments on a panelboard; he made contact with the open secondary of a current transformer.

Spray-gun application of protective paint inward 6 in. from the inlet ends of condenser tubes is common practice.

Expansion may force underground cable off the racks on manhole walls but it is not likely to recur if new disposition of the offset recognizes the expansion.

Mechanical unbalance and vibration of generators is attributed as one cause of tube failures in the associated condenser.

Light-weight battery has silver for positive electrode and zinc for the negative in KOH electrolyte. Weight is ⅓ to 1/5 that of lead and claim is for longer life. Engine-start ratings come later.

Opening of oil circuit recloser, fuse, or sectionalizer can be automatically announced by carrier to the radio dispatcher or maintenance supervisor.

Dry rope has been known to pick up 30% of moisture by weight overnight.

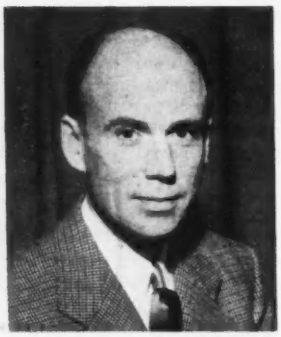
Generator outage of four hours was attributed to a mouse fouling the control circuits; crumbs and scraps of food from employee lunches attracted the mice.

Delayed neutrons are what prevent catastrophically rapid rise in neutron density when cadmium control rods are withdrawn beyond the critical point; instead of a 22,000-fold increase in 2 seconds it becomes a mere 10 percent increase. Breeder piles can be made prosaically safe to operate.

NEWS ABOUT PEOPLE

Square D Co Promotes Mercer, Appoints Roby, Maechtlen VPs

L. W. MERCER



F. H. ROBY

Three new executive officers have been elected by Square D Co, Detroit, Mich. L. W. Mercer, vice president and general manager of the switch and panel division, has been named executive vice president. F. H. Roby and L. G. Maechtlen have been appointed vice presidents.

Mercer will have charge of the company's sales, engineering, and production activities. In the course of his 33 years' service with Square D he has served as manager of the branch plant in Peru and as factory manager and then general manager of the Detroit factory.

Roby, new vice president in charge of sales, joined Square D in 1933 and has been field engineer, headquarters application engineer, manager of industrial control sales, and general sales manager.

Starting with the company more than 20 years ago as a design engineer, Maechtlen has served as Los Angeles plant works manager, Los Angeles territory manager, and Western sales manager. He will continue as Western sales manager, with headquarters in Los Angeles.

L. G. MAECHTLEN

•

May Is Chief Engineer of I-T-E Switchgear Unit

John W. May has been named chief engineer of the Switchgear Division of I-T-E Circuit Breaker Co, Philadelphia. He will direct switchgear engineering and development.

Since 1948 May has been chief mechanical engineer of the Deering Milliken Research Trust, Pendleton, S. C. He began his career in 1927 with Westinghouse Electric Corp where he was concerned with air circuit breaker design and development. In 1941 he went to Wright's Automatic Machinery Co, Durham, N. C., as assistant superintendent and later became chief engineer.

Cincinnati G&E Names Hamill Vice President

Samuel M. Hamill, Jr, manager of the electric operating department of Cincinnati Gas & Electric Co for the last three years, has been elected a vice president of the company.

In his new position, Hamill will have charge of the utility's electrical department, which includes both the distribution and operating departments.

S. M. HAMILL, JR

He joined Cincinnati G&E in 1923 as a substation operator. Later he became maintenance electrician, test electrician, and chief test engineer before being named assistant superintendent of the electric operating department in 1930. He was promoted to superintendent in 1946 and two years later was named manager.

•

Westinghouse Electric Fills Lamp Division Jobs

Dr Rolland M. Zabel has been appointed manager of engineering for the Lamp Division of Westinghouse Electric Corp. He will direct lamp engineering and development, chemical and metallurgical engineering, and the experimental factory in Bloomfield, N. J., for the division.

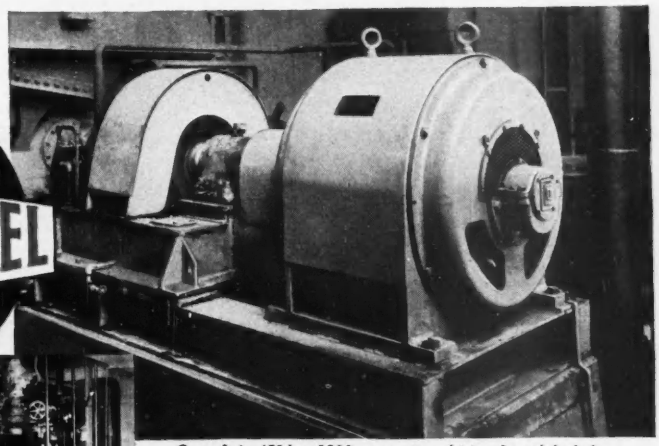
New manager of commercial engineering for the division is George S. Evans, who succeeds the late Ralph

(*Continued on page* 27)

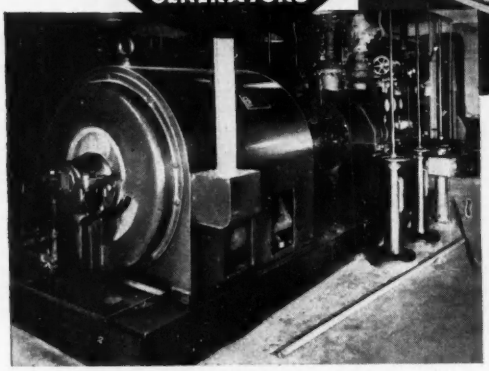
Elliott

FABRI-STEEL

MOTORS AND GENERATORS



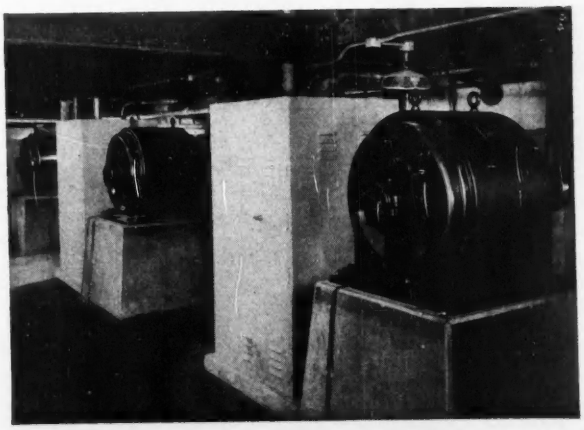
One of six 450-hp, 1200-rpm motors driving forced-draft fans. Six more Elliott motors drive induced-draft fans.



One of four 1250-hp, 3600-rpm drip-proof motors driving boiler-feed pumps.

Large ELLIOTT motors do the big jobs in central stations!

Three of six 250-hp, 1200-rpm motors driving pulverizer mills.



AT ILLINOIS POWER COMPANY, WOOD RIVER POWER STATION

Elliott Fabri-Steel construction brings to big motor design the crack-proof, break-proof stiffness of modern fabricated steel, providing the vitally essential rigid maintenance of air gap.

But that is only part of the story. Fabri-Steel construction for the first time blasts aside the many limitations of old-type construction, enabling Elliott engineers to meet all requirements of motor service, with designs ideally suited to the individual case—and what is almost more important, to effect an easy accessibility that cuts a huge slice from normal maintenance costs. Write for bulletins.

L-814a

HALF CENTURY OF POWER PROGRESS 1901 1951

ELLIOTT COMPANY

Dept. EN

RIDGWAY DIVISION • RIDGWAY, PA.

JEANNETTE, PA. • RIDGWAY, PA. • AMPERE, N. J. • SPRINGFIELD, O. • NEWARK, N. J.

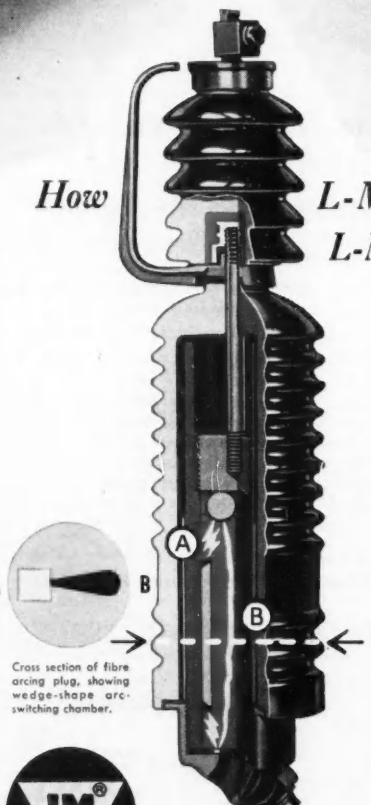
District Offices in Principal Cities

ONLY O-B MAKES INSULATORS AND HARDWARE TO WORK TOGETHER

● There's no divided responsibility when you use O-B suspension insulators and hardware. In the entire insulation industry, only O-B owns its own foundries and forge shops. O-B engineers think in terms of the entire job of supporting a conductor. Design is fully coordinated. Proper fit of parts is assured . . . With full metal manufacturing facilities "under our own roof" we are free to choose materials and processes best adapted to the job, and are not at the mercy of another producer's limitations. . . Physical and electrical testing is thought of in terms of insulators *and* hardware--the *combination* has to work! . . This single responsibility; this thinking in terms of the whole job instead of half of it, costs you nothing extra and pays off in construction savings, performance, and maximum over-all service life. . . Specify O-B insulators *and* hardware.

This wedge blows out the arc

How L-M's arc-switching principle makes L-M expulsion arresters LAST LONGER!

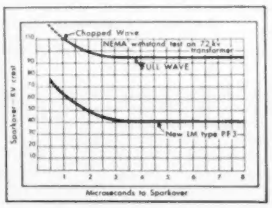


Cross section of fibre arcing plug, showing wedge-shape arc-switching chamber.

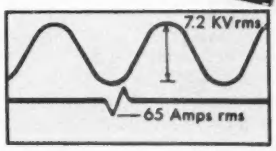
When a surge sparks over in an L-M type PF3 lightning arrester, the arc first jumps the short gaps at *A* (in the cutaway view). Since the arc is in the narrowest part of the wedge-shaped arcing chamber, gas instantly forces the arc over into a long, thin shape at *B*—then blows it out the bottom vent. Fast and sure, it operates in half a cycle or less.

The arc barely touches the electrodes before it's over and out. It doesn't last long enough to burn electrodes or fibre, so the arrester has a long, dependable, trouble-free life.

Better get the whole story from your L-M Field Engineer. Or write for Bulletin LA-3—address Line Material Company, Protective Equipment Division, Milwaukee 1, Wisconsin (a McGraw Electric Company Division).



New lower sparkover level of the 9 kv type PF3 compared with the NEMA minimum standard impulse strength of a 7200 volt transformer. (Other ratings show comparable margins of safety.)



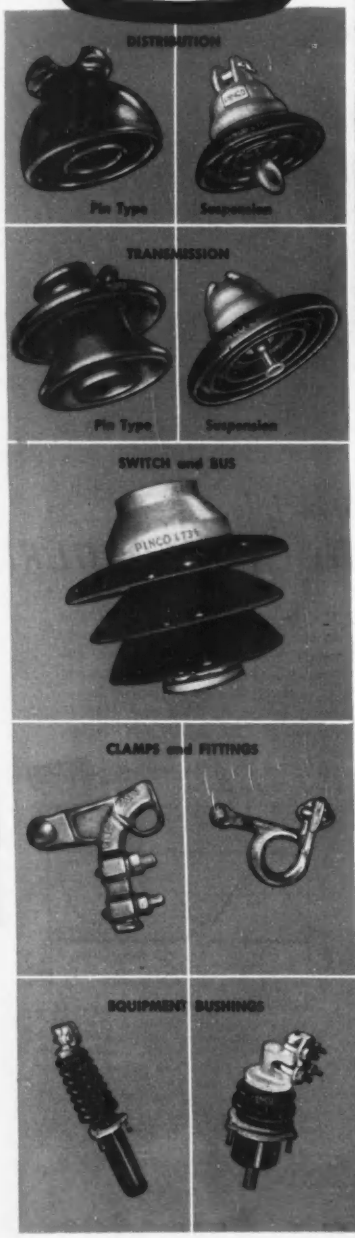
Here a 35000 ampere surge was put on a 7200 volt line with 1200 amp fault current capacity. Because of gas pressure built up by this high surge, the arrester drew only 65 amps follow current, and cut that off in 1/10th cycle. The PF3 also amply meets accepted NEMA standards for lightning arrester performance. Now in seven ratings—3, 6, 9, 10, 12, 15 and 18 kv.

39

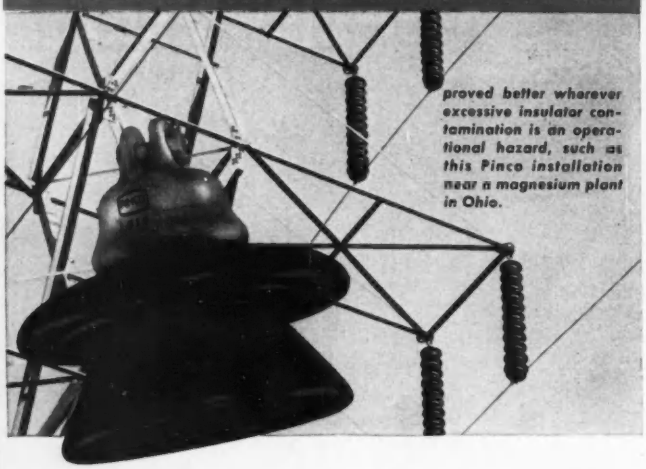
LINE MATERIAL ... Lightning Arresters

Complete Coordinated Equipment for Distribution Today

PINCO INSULATORS



RIGHT for the JOB . . . RIGHT ON THE JOB!



proved better wherever excessive insulator contamination is an operational hazard, such as this Pinco installation near a magnesium plant in Ohio.

Competitive Tests . . . Service Records Prove the Superiority of PINCO L1612 "Universal" Insulators

In competitive "fog operation" tests conducted by a Western power company, Pinco L1612 Insulators rated . . .

FIRST on "fog arc over."

FIRST on sustained voltage "in fog" . . . NO arc over.

FIRST on sustained voltage "in direct spray" . . . NO arc over.

FIRST on both self-cleaning and manual cleaning characteristics.

SECOND on "sluice arc over."

EXCELLENT on radio interference characteristics.

We're proud that Pinco Insulators were so conclusively proved "right" by such laboratory tests. But we're even more proud to know that in actual operation under "fog" conditions, thousands of Pinco L1612's have been meeting their job requirements 100% on installations *made eighteen years ago!* Such a record of trouble-free service proves that they're "right" where it counts . . . "right on the job!" So when you have a tough job for insulators calling for L1612 characteristics . . . put up Pinco *to be sure!*

See Page 70, Pinco Catalog No. 49 for complete electrical and mechanical characteristics.

The Porcelain Insulator Corporation
766 Main St., Lima, N. Y.

Sales Agents: JOSLYN MFG. & SUPPLY CO.
Offices in Principal Cities

PINCO INSULATORS

Suspension Insulators . . . Switch and Bus Insulators . . . Distribution Clamps . . . Distribution Pin Types and Guy Strains . . . Transmission Line Fittings . . . Tree Insulators . . . Transformer and Circuit Breaker Bushings . . . One Piece and Multi-part High Voltage Pin Types . . . Suspension and Strain Clamps . . . Indoor Bus Support Porcelain . . . Lightning Arrester Porcelain.

News About People

(*Continued from page* 22)

R. Brady. Roger W. Doering was named supervisor of plant engineering and Henry E. Bachman supervisor of fluorescent lamp engineering.

Zabel was chief engineer of the Lamp Division of Sylvania Electric Products, Inc, before joining Westinghouse's Lamp Division in 1947 as staff assistant to the engineering manager. Later he became manager of lamp engineering. He is chairman of the Illuminating Engineering Society's committee on street and highway lighting and IES representative to President Truman's national safety committee, secretary of the lighting of public ways committee and a member of the technical committee on sources of light of the International Commission on Illumination.

Evans has been in the company's research, engineering, and production departments, working mostly with lamps and electronic tubes, for 15 years. He did tube design, development, and factory engineering, then was made engineering supervisor for the electronic tube plant the company operated in Fairmont, W. Va., during the war, and returned to Bloomfield as supervisor of lamp development. He has been supervisor of fluorescent lamp engineering for the past three years.

Doering left Westinghouse Air Brake Co, Wilmerding, Pa., to join Westinghouse Electric at Bloomfield in 1943 to aid in postwar rearrangement and expansion of lamp manufacturing facilities. Since then he has been a member of the equipment development and industrial engineering staff and has been in charge of material handling and planning construction of new plants and warehouses. Bachman has been with the company since 1942.

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Fred J. Wellhouse, a lighting application engineer for Westinghouse Electric Corp in San Francisco, has retired after 41 years with the company. He joined Westinghouse in 1909 at East Pittsburgh, and in 1921 was transferred to San Francisco as a power apparatus application engineer. Since 1931 he has specialized in lighting in the San Francisco area.

OBITUARY

William M. Rogers

William McMillan Rogers, 61, president of Birmingham Electric Co from 1935 until his retirement in 1948, died at Birmingham, Ala, May 9.

An attorney who specialized in the field of utility law, Rogers handled the

W. M. ROGERS

legal affairs of Birmingham Electric for a number of years as a member of the law firm of Bradley, Baldwin, All & White before he was appointed president. He held an electrical engineering degree as well as a law degree.

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Dr J. J. Wittmer

Dr John J. Wittmer, 55, vice president of Consolidated Edison Co of New York in charge of employee relations, died at his summer home in New Canaan, Conn., May 19.

Dr Wittmer's program for rehabilitating workers suffering from alcoholism attracted national attention. He joined Con Ed in 1924 as staff physician. He was named medical director of the company in 1937 and assumed the duties of personnel director in 1939. In 1946 he became an assistant vice president and was elected a vice president a year ago.

•

R. I. Gilliland, 63, purchasing and engineering representative in the United States for the Manila Electric Co since 1946, died May 3 at Reading, Pa. He served the utility as manager of the electrical division from 1928 to 1946. Gilliland worked for Pennsylvania Electric Co as construction engineer and Northern States Power Co as district engineer before joining Manila Electric.

Alfred F. Berry, 67, retired commercial sales manager of Consolidated Edison Co of New York, died at New Rochelle, N. Y., May 11. He began his career with a predecessor company of Con Ed in 1906. He retired in 1946.

James M. Kenny, 48, a contract engineer for Combustion Engineering-Superheater, Inc, died May 12 at New York City. He joined the drafting department of Combustion in 1936 and transferred to the engineering department in 1941.

Huntington B. Crouse, Jr, 40, president of Crouse-Hinds Co, died May 14 at Syracuse, N. Y.

Frederick MacDonald Tupper, 68, manager of the New York office of Moloney Electric Co, died May 16 at Great Neck, L. I.

W. H. Jago, 45, system superintendent for Appalachian Electric Power Co, died May 8 at Ashland, Ky.

Robert Bass Morton, 73, electrical engineer specializing in power distribution for Gibbs & Hill, New York consulting engineers, died May 19 at Upper Montclair, N. J.

Thomas Bostock, 86, former assistant treasurer of Foster Wheeler Corp, N. Y., died at Metuchen, N. J., May 16. He served the company for half a century.

Robert C. Miller, 43, assistant superintendent in charge of operations at Toledo Edison Co's Acme Station, died May 3. He joined the utility in 1929.

H. B. Vincent, manager of Field Engineering Service of the R. Thomas & Sons Co, Lisbon, Ohio, died May 5. He had been with the company for 25 years.

Oscar G. Thompson, 53, manager of the San Diego branch of General Electric Supply Corp, died May 11 at San Diego, Calif.

MANUFACTURERS and MARKETS

Orders and Open Manufacturing Capacity for Electrical Equipment, 1951–1954

Capacity Shipped or Scheduled	1951	1952	1953	1954
LARGE STEAM TURBINE-GENERATORS (10,000 Kw and Larger)[1]				
For U. S. Utilities	5,124,500	8,502,000	8,113,500	1,208,500
For U. S. Industrials	430,000	750,000	140,000	.....
For Outside Continental U. S.	920,000	170,000	120,000	30,000
Total	6,474,500	9,422,000	8,373,500	1,238,500
Estimated Open Capacity	.....	150,000	1,200,000	8,300,000
SMALL STEAM TURBINE-GENERATORS (4,000 to 9,999 Kw)[1]				
For U. S. Utilities	163,500	58,000	.....	.....
For U. S. Industrials	246,500	169,500	.....	.....
For Outside Continental U. S.	109,000	102,000	5,000	.....
Total	519,000	329,500	5,000	.....
Estimated Open Capacity	.....	825,000	1,200,000	1,200,000
WATER-WHEEL GENERATORS (4,000 Kw and Larger)[1]				
For U. S. Utilities	1,282,600	1,807,100	874,200	572,500
For U. S. Industrials	.....	25,200	.....	.....
For Outside Continental U. S.	440,600	214,400	10,200	.....
Total	1,723,200	2,047,700	884,400	572,500
Estimated Open Capacity	.....	50,000	1,400,000	1,700,000
POWER TRANSFORMERS (501 Kva and Larger)[2]				
For U. S. Utilities and Industrials	38,633,000	29,399,000	6,652,000	816,000
For Outside Continental U. S.	2,611,000	1,292,000	65,000	28,000
Total	41,244,000	30,691,000	6,717,000	844,000
Estimated Open Capacity	850,000	15,000,000	40,000,000	46,000,000

[1] Figures in kilowatts [2] Figures in kilovolt amperes

Manufacturers Will Have Difficulty Filling Equipment Orders Until '53

Manufacturers of heavy electric power equipment can handle few new orders until 1953. Open manufacturing capacity for the equipment is nonexistent for 1951 and relatively slight for 1952. This summarizes the semiannual report on heavy power equipment production prepared by Edison Electric Institute. The report is based on figures supplied by 19 of the nation's leading manufacturers of such equipment. Virtually all of the heavy equipment used by electric utilities is supplied by these firms.

The EEI report, covering generators, steam and hydro turbines, boilers, and power transformers, includes information on the amount of equipment ordered for delivery before the end of 1954, delivery schedules, and estimated open capacity.

Production schedules reported by manufacturers represent manufacturing programs as they stood April 1 and are based on the assumption that required materials will be available as needed and that manpower supply will be adequate. Material shortages and delay in obtaining materials may be expected to hold up shipments and cut down production, the EEI report pointed out. Estimates of open manufacturing capacity are also based on assumption that there will be an adequate supply of materials and labor.

Electrical manufacturers will ship approximately 31,589,800 kw of steam and hydro generators in 1951-54. Open manufacturing capacity for 1952-54 totals 16,025,000 kw. Of this amount only 1,025,000 kw is available for 1952. This figure increases to 3.8 million kw in 1953 and shoots up to 11.2 million kw in 1954. Full manufacturing capacity is approximately 10.7 million kw a year for steam turbine-generators and 2.2 million kw a year for water wheel generators.

Scheduled production of large steam turbine-generators (10,000 kw and larger) for 1951-1954 totals 25,508,500 kw. The highest year's production will occur in 1952 with orders of 9,422,000 kw on hand. Scheduled production for 1953 now totals 8,373,000 kw. Open manufacturing capacity for the large steam units is 150,000 kw for 1952, 1.2 million kw for 1953, and 8.3 million kw for 1954. The estimated open capacity for 1952 applies only to units ranging from 10,000 to 15,000 kw. A larger range of sizes will be available in 1953, the larger units being available in the fourth quarter. All sizes are obtainable for 1954. Full manufacturing capacity for building large steam turbine-generators is about 9.5 million kw.

Demand for Small Units Declines

Shipments scheduled for delivery in 1951-54 for small turbine-generators (4,000 to 9,999 kw) amount to 853,500 kw. This compares with production of 877,500 kw in 1948. The decrease in demand for smaller size units is believed due to the marked trend toward units of 10,000 kw and higher. Open manufacturing capacity for small units totals 825,000 kw in 1952 and increases to 1.2 million kw in 1953 and 1954, which is the estimated full manufacturing capacity for these units.

Open Capacity 50,000 Kw in '52

Full manufacturing capacity for water-wheel generators is about 2.2 million kw. Shipments for the four years will run about 5,277,800 kw with open capacity estimated at about 3,150,000 kw. Broken down, open capacity is 50,000 kw for 1952, 1.4 million kw for 1953, and 1.7 million kw for 1954. The figure for 1952 applies only to units of the smaller physical size. Both large and small size units are available in 1953-54.

Scheduled production of steam generators 450 psi and higher for 1951-54 is 204,855,000 lb per hr. Open capacity for 1952-54 totals 340,000 lb per hr, increasing from 50,000 in 1952 to 150,000 in 1954. Materials short-

ages have slowed down production of steam generators to a serious extent. Manufacturers have had difficulty in getting structural steel, boiler plate, header forgings, pipe headers, and particularly all kinds of tubes.

For hydraulic turbines 5,000 hp and larger scheduled production for the four-year period totals 6,720,500 hp. In addition manufacturers report scheduled shipments of 980,000 hp for the period beyond 1954. Open capacity of 800,000 hp is available for 1952 but only for small-size units. The figure for 1953 is 3.6 million hp and for 1954 3.3 million hp. The capacity for these two years is available for units of all sizes.

Shipments of power transformers 501 kva and larger scheduled for 1951-54 will total 79,496,000 kva. Open manufacturing capacity of 15 million kva estimated for 1952 applies only to small and larger sizes. The following year open capacity will be 40 million kva, available for the full range of sizes. Forty-six million kva will be available in 1954. This compares with full manufacturing capacity of 47-50 million kva.

MANUFACTURING BRIEFS

The work week at the Shawnee, Okla., plant of Sylvania Electric Products, Inc, has been increased from 40 to 48 hours. The plant makes radio tubes and increased demand for the tubes caused the lengthening of the work week.

Westinghouse Electric Corp's Union City plant now under construction will be geared to produce 75,000 electric motors a month. The motors will range in size from 1/20 to ½ hp.

General Electric Co has launched a large-scale production program calling for the manufacture of more than 50 gas turbines a year.

Metal Prices
May 21, 1951

COPPER, Conn. V., lb.	$ .24½
LEAD, N. Y., lb.	.17
ZINC, prime Western, E. St. Louis, lb.	.17½
TIN, Straits, qual. N. Y., lb.	1.39
ALUMINUM, ingot, base price	.19
NICKEL, base price	.50½
STEEL, billets, Pitts., ton	56.00
STEEL, scraps, No. 1 heavy Pitts., ton	45.00

NEW ELECTRICAL CONSTRUCTION

A weekly selection of U. S. electrical construction projects announced by private and government utility systems involving more than $70,000. Also listed are major industrial and construction jobs where electrical work is indicated or implied

UTILITIES

Proposed Construction

Ala., Birmingham—Appleton Electric Co., 1713 W. Wellington St., Chicago, Ill., mfg. plant, **$650,000.**

Ala., Hartselle—Wheeler Electric Membership Corp., Hartselle, warehouse and office. Extended date. Southern Engineering Co., 1000 Crescent Ave. N. E., Atlanta, Ga., archt.

Ala., Stevenson—North Alabama Electric Co-operative, Stevenson, warehouse and office, Southern Engineering Co., 1000 Crescent Ave. N. E., Atlanta, Ga., archts.

Arkansas—C. & L. Rural Electric Co-operative, Star City, rural distr. lines, transmission lines, Lincoln Co. Pepper & Matthews, Yazoo City, engrs.

California—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., 12 vertical-shaft, turbine-type pumping units for Pumping Plants E1 and E2, Laterals 74.6E and 77.3E, Unit 1, Exeter Irrigation Dist. Friant-Kern Canal Distribution systems, Spec. DS-3426, Central Valley Proj.

Calif., Inyokern—Officer in Charge of Constr., Bldg. 981, Naval Ordnance Test Station, electrical distr. sys. NOY 27071, Spec. 29071. Approx. $60,000, Plans deposit $30; test bldg. and facilities, NOY 27070, Spec. 29070, Approx. $82,000, Plans deposit $90, at Randsburg Work Test Range.

Ga., Newman—Coweta-Fayette Electric Membership Corp., warehouse and office. Extended date. Southern Engineering Co., 1000 Crescent Ave., N. E., Atlanta, Ga., archts.

Ill., Great Lakes—P. Wks. Office, 9th Naval Dist., Great Lakes, Ill., electrical imprvt. and fire protection facilities at Naval Training Center, Spec. 28536. Plans deposit $15.

Minnesota—Northern States Power Co., 15 S. 5 St., 115 mi. transmission line between Granite Falls, Minn. and Sioux Falls, S. D. **$100,000,** Hibbert Hill, ch. engr.

Missouri—Laclede Electric Co-operative, Lebanon, rural distr. lines, sys. imprvs., Laclede, Webster and Wright Counties, **$3,047,000.**

Montana—McCone County Electric Co-operative, Circle, 388 mi. rural distr. lines, McCone and Garfield Counties $475,000, Associated Engineers, 105 S. 5 St., Bismark, N. D., engrs.

Montana—Bureau Reclamation, Dpt. Interior, Billings, one 3,750 kva and one 15 kva transformers, one 14,400 volt power circuit breaker, two 115,000 volt air switches, three 115,000 volt, one 15,000 volt disconnecting fuses, nine 15,000 volt disconnecting switches, 3 current and 3 potential transformers, Missouri River Basin Proj., Gregory substation Spec. 6008-56. L. N. McClellan, Bldg. 1A, Denver Federal Center, Denver, Colo., ch. engr.

N. J., Gibbstown—Atlantic City Electric Co., Kentucky and Pacific Aves., Atlantic City, generator plant. **$6,500,000.** Burns & Roe, 233 Broadway, New York, N. Y., consult. engrs.

New Mexico—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., construction of Belen-Willard 115-kilovolt transmission line, Rio Grande Proj., south of Albuqurque, Spec. No. DC-3417.

N. M., Los Alamos—U. S. Atomic Energy Comn., Los Alamos, laboratory maintenance shops, Inv. No. 291-051-129. $1,-250,000-$1,500,000. Plans deposit $50.

N. M., Los Alamos—U. S. Atomic Energy Comn., Chief, Contract Div., Los Alamos, addnl. power and steam supply facilities, etc. Inv. No. 291-51-112. $500,-000-$650,000. Plans deposit $50.

N. Y., West Milton—Atomic Energy Comn., c/o General Electric Co., River Rd., Schenectady, 75x250 ft. power plant; 33x85 ft. waste handling plant; 40x50 ft. boiler plant; 30x160 ft. vehicle storage; 55x150 ft. foundations for cooling tower and pump house. **$3,500,000.** Charles T. Main, Inc., 50 Federal St., Boston, Mass., archt.-engr.

Okla., Anadarko—Western Electric Co-operative, Anadarko, power plant bldg. and related structures. $200,000. Laramore & Douglass, Inc., 79 E. Adams St., Chicago 3, Ill., engr.

Oregon—Bonneville Power Admin., 827 N.E. Oregon St., Portland, construct J. P. Alvey Sub-station, Lane Co. Inv. 5800. Plans deposit $25.

S. C., Gaffney—Broad River Electric Co-operative, Gaffney, warehouse and office. Extended date. Southern Eng. Co., 1000 Crescent Ave. N. E., Atlanta, Ga., archts.

Tennessee—Tri-State Electric Co-operative, Cooperhill, sys. imprvs., Polk Co. **$150,000.**

Tex., Corpus Christi—Dpt. of Air Force, The Pentagon, Wash. 25, D. C., construct radar station. **$750,000.**

Tex., Fort Worth—Dpt. of Air Force, The Pentagon, Wash. 25, D. C., construct radar station. **$750,000.**

Tex., San Antonio—Dpt. Air Force, The Penagon, Wash. 25, D. C., construct radar station. **$750,000.**

Washington—Bonneville Power Admin., 827 N.E. Oregon St., Portland, Ore., construct Walla Walla sub-station maintenance storage bldg., Inv. 5795. Plans deposit $1.

Wyoming—Tri-County Electric Assn., Sundance, 47 mi. transmission lines, Crook Co. $150,000. Extended date. H. S. Nixon Eng. Co., W. O. W. Bldg., Omaha, Neb., engr.

Ont., Hamilton—Canadian Westinghouse Co. Ltd., 286 Sanford St., 4 story, bamnt., concrete, brick plant for electronics division laboratory, incl. new plant to produce electrical apparatus, electronic equip. and supplies armed forces and defense program on Beach Rd. Approx. **$10,000,000**

Low Bidders & Contracts Awarded

Ky., Muldraugh—Louisville Gas & Electric Co., 311 W. Chestnut St., Louisville, Ky. Own Forces. **$750,000.** Electric power sub-station with equip.

INDUSTRIAL, COMMERCIAL & PUBLIC BUILDINGS

Proposed Construction

Ga., Valdosta—National Container Co., Borden and Review Sts., Long Island City, N. Y., kraft board pulp and paper mill, **$25,000,000.**

La., Baton Rouge—Continental Oil Co., Westlake, via Baton Rouge, tripling existing capacity of crude oil refinery at Westlake. **$23,000,000.**

Mich., Detroit—J. L. Hudson Co., 1206 Woodward St., Zone 1, plans by Greun & Krummeck, 1905 Industrial Bank Bldg., shipping center, Eight Mile and Kelly Rds. **$15,000,000.**

O., Rossford—Libbey-Owens-Ford Glass Co., Nicholas Bldg., Toledo, factory to produce precision plate glass. **$14,183,000.**

S. C., Charleston—U. S. Eng., (P. O. Box 905) 33 Custom House, imprv. airport as army air base. **$35,000,000.**

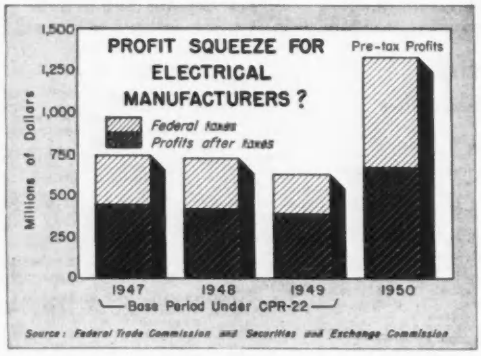
Tenn., Hohenwald—City, factory. **$500,-000.**

Tex., Houston—Shell Oil Co., Shell bldg., benzine plant at Deer Park site. **$12,-330,000.**

Low Bidders & Contracts Awarded

Ind., Kingsbury—Tonn & Blank, Inc., 104 N. Franklin St., Michigan City, Ind. Contract Awarded. **$2,500,000.** Second sect. PLANTS, Defense Dpt., Kingsbury Ordnance Plant, Kingsbury, Ind. Awarded May 4.

Electrical Business Outlook



PRICE CEILING for electrical manufacturers will hold unless profits drop below 1947-1949 average. This is not likely

Price Rollback on Apparatus

Utilities are going to get lower prices on many equipment items. That's the prevalent opinion both at OPS and in the electrical machinery industry, according to a check made by "Electrical World" on the new machinery price order (CPR-30).

It's good news for the power companies. But it's the beginning of a squeeze on profit margins for the equipment makers.

By May 28 manufacturers are supposed to file new prices, computed as follows: pre-Korea prices plus increases in factory payroll and material costs up to March 15, 1951. A manufacturer can use April-June, 1950, or any one of the three previous calendar quarters as his base period. On a specially built machine, for which there was no base period price, OPS prescribes a way to figure base period costs.

Current apparatus prices probably allow for more cost factors than the order provides for generally, such as overheads, sales expense, overtime, etc. However, in the application of the new pricing formula there may be a cushion for some of these items where volume of sales exceeds the base period.

Materials Will Also Drop in Price

This makes it likely that a good many prices will now be rolled back. The equipment makers will benefit at the same time from some rollbacks on materials costs. So there may be another—probably slight—price reduction later on.

OPS isn't guaranteeing anyone that manufacturing costs are going to stay down. But it has made clear that under this ruling any future cost increases are going to be absorbed. The sixth round of wage increases now underway (EBO, April 11) won't provide grounds for price relief. Neither will the creeping rise in other costs.

There are only two ways a manufacturer will be able to get relief from the new price ceilings:

1. If he's losing money
2. If the *industry's* pretax profits drop below 85% of the average for the three best years of 1946-49.

Few companies lose money in a boom period like this. And overall profits in electrical manufacturing won't fall below the base period average for a blue moon. They're far above it now (chart). So every cost increase from now on comes out of profits.

OPS strategy is to hold down living costs and so block cost-of-living wage increases. That would take some pressure off manufacturing costs—if it can be done. But even so, payroll costs will rise gradually, reflecting annual improvement factors, job differentials, overtime, and various fringe benefits.

There are also two big non-operating costs that will go up substantially. One is depreciation. Writing off new, high-cost plant can cut profit noticeably if the increased write-off isn't allowed in pricing. The other bogey is corporate taxes. The increases there won't count either.

It all adds up to a squeeze on profits as costs move up and prices are held down by ceilings.

Will the Ceilings Hold?

The stabilizers evidently feel profits can stand this squeeze. From a short run point of view they may be right. Recent profits have certainly been high. Some individual firms will be hurt. But it will be hard for most manufacturers to protest effectively, at least for some months.

For the long run, it's much more doubtful whether profit control can work. As costs increase and margins are squeezed, it's going to be hard to get extra machinery output. And that output is needed for defense.

To keep producion rolling, the 85% standard will probably be relaxed—first in individual cases, later in general. When and how much depends on how strongly pressure builds up against the controls. But it would be foolish to assume that the price rollback will hold indefinitely.

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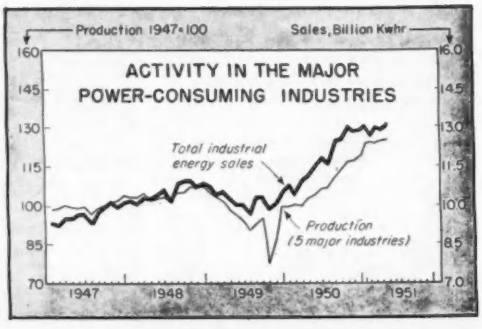
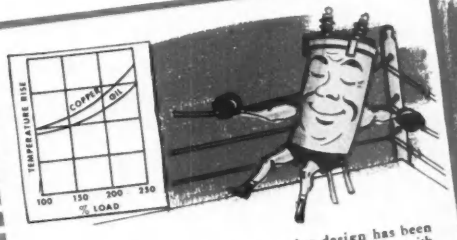


The Lightweight Champ!

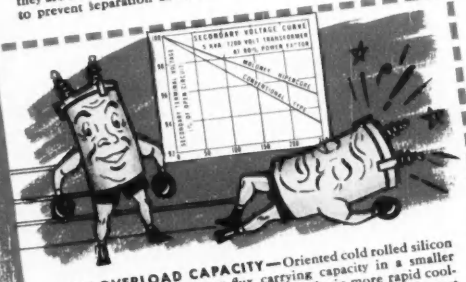
He's a real champ! No managerial headaches about maintenance costs . . . they're practically nil with "Hi". His performance record is unexcelled . . . and what's more . . . he's a natural lightweight which means less strain on his handlers. These facts, together with an ample, superior circulatory system that makes him cooler and more rugged under fire all add up to the lightweight champ . . . "Hi" HiperCore.

The Reasons

HIGH SHORT CIRCUIT STRENGTH—Securely braced coils, made mechanically rigid with heat-curing bonding materials, enables "Hi" to withstand the most severe mechanical strains under short circuit conditions. Shifting or distortion of his windings is prevented, thus eliminating insulation abrasion. You can't damage his cores with short circuits either because they are bonded together with a force of several thousand pounds to prevent separation of the laminations.



SURGE PROTECTION—"Hi's" superior design has been surge-proved on Moloney's 2,500,000 volt surge generator with impulse tests well in excess of minimum requirements. In order for "Hi" to surge-prove at the high level that he does, he has properly distributed insulation, has had air and moisture pockets removed by vacuum treatments, and has a superior oil of very high dielectric strength. A higher factor of safety is the result.



HIGH OVERLOAD CAPACITY—Oriented cold rolled silicon steel cores permit greater flux carrying capacity in a smaller mass. Extensive use of cooling ducts results in more rapid cooling of the cores and windings, thus achieving a lower hottest spot temperature gradient. Because of this "Hi" HiperCore can, without damage, carry peak overloads that would greatly shorten the life of ordinary transformers which might operate satisfactorily at normal loads.

HiperCore

YOU BE THE JUDGE . . .

Check these features against them all. You'll be sure to come up with the decision that HiperCore is the lightweight champ!

- **Long Operating Life**
- **High Factor-of-Safety in Design**
- **Light weight**
- **Small size**
- **Better Voltage Regulation**
- **Superior Tap Changer**

HCD1-6

MOLONEY ELECTRIC COMPANY

Manufacturers of Power Transformers • Distribution Transformers • Load Ratio Control Transformers • Step Voltage Regulators • Unit Substations

SALES OFFICES IN ALL PRINCIPAL CITIES • FACTORIES AT ST. LOUIS, MO. AND TORONTO, ONT., CANADA

Expanded Assembly Lines Increase CURVACORE Transformer Production

IT IS NOW EASIER to obtain *Curvacore* distribution transformers. Production facilities are expanded. You'll be able to take advantage of the inherent benefits of *Curvacore* transformers sooner.

Curvacore transformer design improvements give more performance for your distribution dollar. Cold rolled oriented steel strips have high flux carrying capacity and low hysteresis loss. The core steel is wound, shaped, annealed and cut into two turn lengths. Then each length is fed through the coil structure so that it retains its original core shape.

You benefit from these improvements:

1. 50% lower exciting current
2. Better ratio of losses
3. Improved short time thermal capacity
4. Size and weight reduced 15%
5. Regulation improved up to 15%

This wound core design provides a more efficient path for the magnetic flux, resulting in low exciting current. The *Curvacore* transformer has better thermal performance, too! Increased cooling area within the windings reduces the copper-to-oil temperature gradient, improves regulation and adds years to service life. Weight is reduced, making the *Curvacore* transformer compact, easy to handle and to install.

Former Advantages Retaincd

In addition to *Curvacore* transformer design you still get *Spra-Bonderized* tanks with 3-coat baked-on finish of alkyd-resinous paint; simplified high voltage angle bushings with handy chuck type connectors; sturdy tank construction; high quality craftsmanship throughout.

For more information about the *Curvacore* transformer, contact your local Allis-Chalmers district office or write Allis-Chalmers, Milwaukee 1, Wisconsin. A-3366

Typical core and coil assembly shown above. Present ratings of Curvacore transformers are 25 kva and below. Others will be available shortly.

Curvacore is an Allis-Chalmers trademark.

ALLIS-CHALMERS